XR-CA310/L210

SERVICE MANUAL

AEP Model
UK Model

Ver 1.2 2001.05

Photo: XR-L210

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MG-36SZ11-32

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.13 % (WRMS)
Frequency response	30– 15,000 Hz
Signal-to-noise ratio	55 dB

Tuner section

FM

Tuning range	87.5 – 108.0 MHz
Aerial terminal	External aerial connector
Intermediate frequency	10.7 MHz
Usable sensitivity	11 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	62 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.7 % (stereo), 0.5 % (mono)
Separation	33 dB at 1 kHz
Frequency response	30– 15,000 Hz

MW/LW

Tuning range	MW: 531 – 1,602 kHz LW: 153 – 279 kHz
Aerial terminal	External aerial connector
Intermediate frequency	10.7 MHz/450 kHz
Sensitivity	MW: 30 µV LW: 50 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4– 8 ohms
Maximum power output	45 W × 4 (at 4 ohms)

General

Outputs	Audiooutput Power aerial relay control lead
Input	Telephone ATT control lead*
Tone controls	Bass ±9 dB at 100 Hz Treble ±9 dB at 10 kHz
Power requirements	12 V DC car battery (negative earth)
Dimensions	Approx.178 × 50 × 176 mm (w/h/d)
Mountingdimensions	Approx.182 × 53 × 161 mm (w/h/d)
Mass	Approx.1.2 kg
Supplied accessories	Parts for installationand connections (1 set) Front panel case (1)

* *XR-CA310/ illumination green only*

Design and specifications are subject to change without notice.

FM/MW/LW CASSETTE CAR STEREO

9-870-241-13
2001E0500-1
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Sony Corporation
e Vehicle Company
Shinagawa Tec Service Manual Production Group

SONY®

TABLE OF CONTENTS

1. GENERAL

Location of Controls 3
Setting the Clock 3
Installation 4
Connections 5

2. DISASSEMBLY

2-1. Disassembly Flow 8
2-2. Sub Panel 9
2-3. Mechanism Deck (MG-36SZ11-32) 9
2-4. MAIN Board 10
2-5. Bracket (MD) 10
2-6. Heat Sink 11
2-7. Motor (Capstan/Reel) (M901) 11
2-8. Head (Play Back) (HP901) 12
2-9. Main Belt, Sub Belt (C) 13

3. MECHANICAL ADJUSTMENTS 14

4. ELECTRICAL ADJUSTMENTS 14

Tape Deck Section 15
Tuner Section 16

5. DIAGRAMS

5-1. Note for Printed Wiring Boards and Schematic Diagrams 19
5-2. Printed Wiring Board – MAIN Board – 21
5-3. Schematic Diagram – MAIN Board (1/2) – 22
5-4. Schematic Diagram – MAIN Board (2/2) – 23
5-5. Printed Wiring Board – CONTROL Board – 24
5-6. Schematic Diagram – CONTROL Board – 25
5-7. IC Pin Function Description 26

6. EXPLODED VIEWS

6-1. General Section 28
6-2. Front Panel Section 29
6-3. Mechanism Deck Section (MG-36SZ11-32) 30

7. ELECTRICAL PARTS LIST 31

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

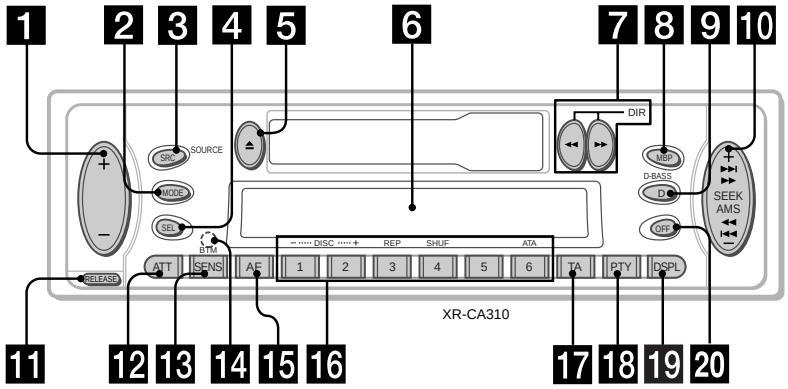
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location of controls



Refer to the pages listed for details.

1 Volume +/– button 7

2 MODE button

During radio reception:
BAND select 8, 9

During CD/MD playback*:
CD/MD unit select 17

3 XR-CA310
SOURCE (TUNER/CD/MD) button
8, 9, 17

XR-L210
TUNER button 8, 9

4 SEL (select) button 7, 14, 15, 16, 17

5 ⏏ (eject) button 7, 8, 9, 17

6 Display window

7 ◀◀/▶▶ (fast winding)/DIR (tape transport direction change) buttons 7, 8

8 MBP (My Best sound Position) button 16

9 D-BASS button 16

10 SEEK/AMS +/– button
9, 11, 14, 18
Seek 9
Automatic Music Sensor* 18
Manual search* 18

11 RELEASE (front panel release) button
6, 19

12 ATT (attenuate) button 15

13 SENS/BTM button 8, 9, 13

14 RESET button (located on the front side of the unit behind the front panel) 6

15 AF button 10, 11, 13

16 Number buttons 8, 9, 14, 15, 18
During radio reception:
Preset number select 9, 11

During tape playback:
(6) ATA 8

During CD/MD playback*:
(1) DISC – 18
(2) DISC + 18
(3) REP 18
(4) SHUF 18

17 TA button 12, 13

18 PTY (programme type) button 14

19 DSPL (display mode change) button
7, 10, 17

20 OFF button** 6

* XR-CA310 only

** Warning when installing in a car without ACC (accessory) position on the ignition key switch
Be sure to press (OFF) on the unit for two seconds to turn off the clock display after turning off the engine.
When you press (OFF) momentarily, the clock display does not turn off and this causes battery wear.

Setting the clock

The clock uses a 24-hour digital indication.

Example: To set the clock to 10:08

1 Press (DSPL) for two seconds.

The hour indication flashes.

❶ Press either side of the volume button to set the hour.

to go forward

to go back

❷ Press (SEL).

The minute indication flashes.

❸ Press either side of the volume button to set the minute.

to go forward

to go back

2 Press (DSPL).

The clock starts.

After the clock setting is complete, the display returns to normal playback mode.

Installation

Precautions

- Choose the installation location carefully so that the unit will not interfere with normal driving operations.
- Avoid installing the unit in areas subject to dust, dirt, excessive vibration, or high temperatures, such as in direct sunlight or near heater ducts.
- Use only the supplied mounting hardware for a safe and secure installation.

Mounting angle adjustment

Adjust the mounting angle to less than 20°.

How to detach and attach the front panel

Before installing the unit, detach the front panel.

A To detach

Before detaching the front panel, be sure to press (OFF). Press (RELEASE), then slide the front panel a little to the left, and pull it off towards you.

B To attach

Attach part Ⓐ of the front panel to part Ⓑ of the unit as illustrated and push the left side into position until it clicks.

Installation

Vorsichtsmaßnahmen

- Wählen Sie den Einbauort sorgfältig so aus, daß das Gerät beim Fahren nicht hinderlich ist.
- Bauen Sie das Gerät so ein, daß es keinen hohen Temperaturen (keinem direkten Sonnenlicht, keiner Warmluft von der Heizung), keinem Staub, keinem Schmutz und keinen starken Vibrationen ausgesetzt ist.
- Für eine sichere Befestigung verwenden Sie stets nur die mitgelieferten Montageteile.

Hinweis zum Montagewinkel

Das Gerät sollte in einem Winkel von weniger als 20° montiert werden.

Abnehmen und Anbringen der Frontplatte

Nehmen Sie die Frontplatte vor dem Einbau des Geräts ab.

A Abnehmen

Schalten Sie das Gerät vor dem Abnehmen der Frontplatte unbedingt mit (OFF) aus. Drücken Sie (RELEASE), schieben Sie anschließend die Frontplatte ein wenig nach links, und ziehen Sie sie auf sich zu heraus.

B Anbringen

Setzen Sie Teil Ⓐ der Frontplatte wie in der Abbildung dargestellt an Teil Ⓑ des Geräts an, und drücken Sie die linke Seite der Frontplatte an, bis sie mit einem Klicken einrastet.

Installation

Précautions

- Choisir soigneusement l'emplacement de l'installation afin que l'appareil ne gêne pas la conduite normale du véhicule.
- Eviter d'installer l'appareil dans un endroit exposé à des températures élevées, comme en plein soleil ou à proximité d'une bouche d'air chaud, ou à de la poussière, à des saletés ou à des vibrations violentes.
- Pour garantir un montage sûr, utiliser le matériel fourni uniquement.

Réglage de l'angle de montage

Ajuster l'inclinaison à un angle inférieur à 20°.

Retrait et pose de la façade

Avant d'installer l'appareil, déposer la façade.

A Pour la retirer

Avant de déposer la façade, ne pas oublier d'appuyer sur (OFF). Appuyer ensuite sur (RELEASE), puis faire glisser la façade légèrement vers la gauche et l'enlever en la tirant à soi.

B Pour l'attacher

Fixez la partie Ⓐ de la façade sur la partie Ⓑ de l'appareil, comme indiqué sur l'illustration, puis appuyez sur le côté gauche jusqu'au déclic.

Installazione

Precauzioni

- Scegliere con attenzione la posizione per l'installazione in modo che l'apparecchio non interferisca con le operazioni di guida del conducente.
- Evitare di installare l'apparecchio dove sia soggetto ad alte temperature, come alla luce solare diretta o al getto di aria calda dell'impianto di riscaldamento o dove possa essere soggetto a polvere, sporco e vibrazioni eccessive.
- Usare solo il materiale di montaggio in dotazione per un'installazione stabile e sicura.

Regolazione dell'angolo di montaggio

Regolare l'angolo di montaggio in modo che sia inferiore a 20°.

Come rimuovere e reinserire il pannello anteriore

Prima di installare l'apparecchio, rimuovere il pannello anteriore.

A Per rimuoverlo

Prima di rimuovere il pannello anteriore, premere (OFF). Premere (RELEASE), quindi far scorrere leggermente il pannello anteriore verso sinistra e tirarlo verso di sé.

B Per reinserirlo

Applicare la parte Ⓐ del pannello anteriore alla parte Ⓑ dell'apparecchio come mostrato nell'illustrazione e premere il lato sinistro fino a sentire uno scatto.

Montage

Voorzorgsmaatregelen

- Kies de installatieplaats zorgvuldig zodat het toestel de bestuurder niet hindert tijdens het rijden.
- Installeer het apparaat niet op plaatsen waar het blootgesteld wordt aan hoge temperaturen, b.v. in direct zonlicht of bij de warme luchtstroom van de autoverwarming, aan sterke trillingen, of waar het in contact komt met veel stof of vuil.
- Gebruik voor het veilig en stevig monteren van het apparaat uitsluitend de bijgeleverde montage-onderdelen.

Maximale montagehoek

Installeer het apparaat nooit onder een hoek van meer dan 20° met het horizontale vlak.

Verwijderen en bevestigen van het afneembare voorpaneel

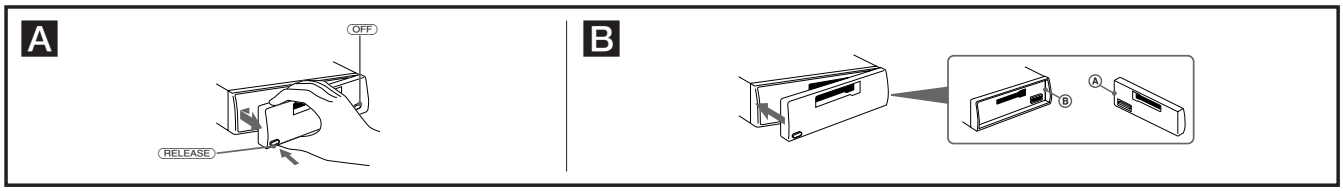
Verwijder, alvorens met het installeren te beginnen, het afneembare voorpaneel.

A Verwijderen

Vergeet niet, voordat u het voorpaneel verwijdert, eerst op (OFF) te drukken. Druk vervolgens op de (RELEASE) toets, schuif het voorpaneel iets naar links en trek het naar u toe.

B Bevestigen

Breng deel Ⓐ van het voorpaneel aan op deel Ⓑ van het apparaat zoals afgebeeld en druk op de linkerzijde tot deze vastklikt.



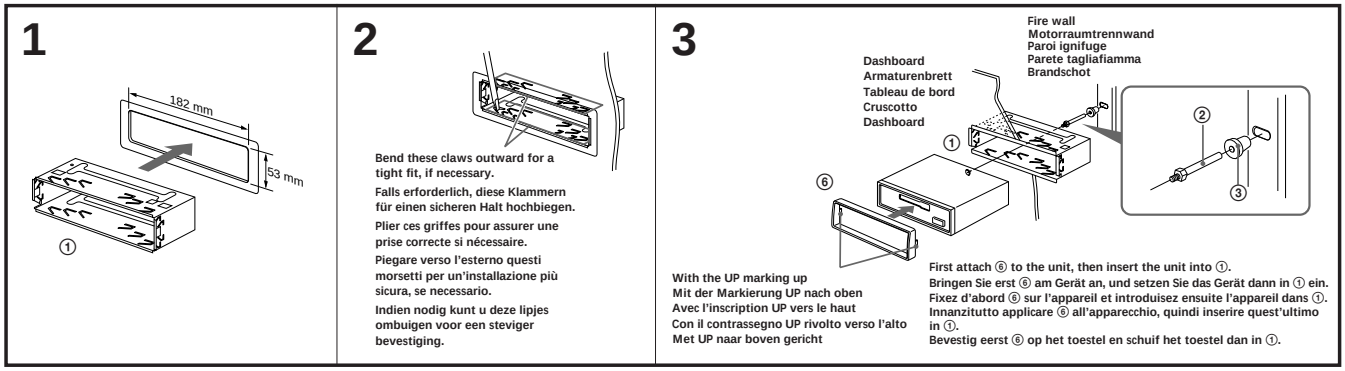
Installation in the dashboard

Installation im Armaturenbrett

Installation dans le tableau de bord

Installazione nel cruscotto

Montage in het dashboard


1
182 mm
53 mm
2
Bend these claws outward for a tight fit, if necessary.
Falls erforderlich, diese Klammern für einen sicheren Halt hochbiegen.
Plier ces griffes pour assurer une prise correcte si nécessaire.
Piegare verso l'esterno questi morsetti per un'installazione più sicura, se necessario.
Indien nodig kunt u deze lipjes ombuigen voor een steviger bevestiging.
3
Fire wall
Motorraumtrennwand
Paroi ignifuge
Parete tagliafiamma
Brandschot
Dashboard
Armaturenbrett
Tableau de bord
Cruscotto
Dashboard
With the UP marking up
Mit der Markierung UP nach oben
Avec l'inscription UP vers le haut
Con il contrassegno UP rivolto verso l'alto
Met UP naar boven gericht
First attach ⑥ to the unit, then insert the unit into ①.
Bringen Sie erst ⑤ am Gerät an, und setzen Sie das Gerät dann in ① ein.
Fixez d'abord ⑥ sur l'appareil et introduisez ensuite l'appareil dans ①.
Innanzitutto applicare ⑥ all'apparecchio, quindi inserire quest'ultimo in ①.
Bevestig eerst ⑥ op het toestel en schuif het toestel dan in ①.

Reset button

When the installation and connections are complete, be sure to press the reset button with a ballpoint pen, etc.

Rücksetztaste

Nach der Installation und dem Anschluß muß die Rücksetztaste mit einem Kugelschreiber o. ä. gedrückt werden.

Touche de réinitialisation

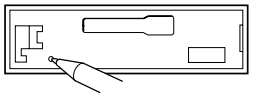
Quand l'installation et les connexions sont terminées, appuyer sur la touche de réinitialisation avec un stylo à bille, etc.

Tasto di azzeramento

Dopo avere terminato l'installazione e i collegamenti, assicurarsi di premere il tasto di azzeramento con la punta di una penna a sfera, ecc.

Terugsteltoets

Druk, nadat u het apparaat heeft geïnstalleerd en de aansluitingen heeft gemaakt, met een balpen of een ander puntig voorwerp op de terugsteltoets.



Connections

Cautions

- This unit is designed for negative earth 12 V DC operation only.
- Be careful not to pinch any wires between a screw and the body of the car or this unit or between any moving parts such as the seat railing, etc.
- Connect the power connecting cord ⑤ to the unit and speakers before connecting it to the auxiliary power connector.
- **Run all earth wires to a common earth point.**
- Connect the yellow cord to a free car circuit rated higher than the unit's fuse rating. If you connect this unit in series with other stereo components, the car circuit they are connected to must be rated higher than the sum of the individual components' fuse rating. If there are no car circuits rated as high as the unit's fuse rating, connect the unit directly to the battery. If no car circuits are available for connecting this unit, connect the unit to a car circuit rated higher than the unit's fuse rating in such a way that if the unit blows its fuse, no other circuits will be cut off.
- Be sure to insulate any loose unconnected wires with electrical tape for safety.
- When installing a car without ACC (accessory) position on the ignition key switch, connect the red power input lead to the +12 V power terminal which is energized at all times with the yellow lead.

Warning when installing in a car without ACC (accessory) position on the ignition key switch

Be sure to press (OFF) on the unit for two seconds to turn off the clock display after turned off the engine.
When you press (OFF) momentarily, the clock display does not turn off and this causes battery wear.

Notes of connection diagram

Notes on the control leads
- *The power aerial control lead (blue) supplies +12 V DC when you turn on the unit.*
- *When your car has a built-in FM/MW/LW aerial in the rear/side glass, it is necessary to connect the power aerial control lead (blue) or the accessory power input lead (red) to the power terminal of the existing aerial booster. For details, consult your dealer.*
- *A power aerial without a relay box cannot be used with this unit.*

Warning
If you have a power aerial without a relay box, connecting this unit with the supplied power connecting cord ⑤ may damage the aerial.

Memory hold connection
When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition switch is turned off.

Notes on speaker connection
- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Be sure to connect passive speakers to these terminals.*

1* ***Note for the aerial connecting*
If your car aerial is an ISO (International Organization for Standardization) type, use the supplied adapter ⑦ to connect it. First connect the car aerial to the supplied adapter, then connect it to the aerial jack of the master unit.

Anschluß

Vorsicht

- Dieses Gerät ist ausschließlich für den Betrieb bei 12 V Gleichstrom (negative Erdung) bestimmt.
- Achten Sie darauf, keine Kabel zwischen einer Schraube und der Karosserie oder diesem Gerät oder zwischen beweglichen Teilen wie den Sitzschienen usw. einzuklemmen.
- Verbinden Sie das Stromversorgungskabel ⑤ erst mit dem Gerät und den Lautsprechern, bevor Sie es an den Hilfsstromanschluß anschließen.
- **Schließen Sie alle Erdungskabel an einen gemeinsamen Massepunkt an.**
- Schließen Sie das gelbe Kabel an einen freien Autostromkreis mit höherer Leistung als der der Gerätesicherung an. Wenn Sie dieses Gerät zusammen mit anderen Stereokomponenten anschließen, muß der Autostromkreis, an den die Geräte angeschlossen sind, eine höhere Leistung aufweisen als die Summe der Sicherungen der einzelnen Komponenten. Wenn kein Autostromkreis eine so hohe Leistung aufweist wie die Sicherung des Geräts, schließen Sie das Gerät direkt an die Batterie an. Wenn kein Autostromkreis zum Anschließen dieses Geräts frei ist, schließen Sie das Gerät an einen Autostromkreis mit höherer Leistung als der der Gerätesicherung an, und zwar so, daß keine anderen Stromkreise unterbrochen werden, wenn die Sicherung durchbrennen sollte.
- Aus Sicherheitsgründen müssen alle losen, nicht angeschlossenen Drähte mit Isolierband abisoliert werden.
- Bei Installation des Geräts in einem Auto, dessen Zündschloß keine Position ACC oder I aufweist, schließen Sie die rote Stromversorgungsleitung an den +12-V-Stromversorgungsanschluß an, der über die gelbe Leitung immer mit Strom versorgt wird.

Warnhinweis zur Installation des Geräts in einem Auto mit Zündschloß ohne Zubehörposition ACC oder I

Drücken Sie am Gerät unbedingt zwei Sekunden lang (OFF), um die Uhrzeitanzeige auszuschalten, nachdem Sie den Motor ausgeschaltet haben.
Wenn Sie (OFF) nur kurz drücken, wird die Uhrzeitanzeige nicht ausgeschaltet, und der Autobatterie wird Strom entzogen.

Hinweise zum Anschlußdiagramm

Hinweise zu den Steuerleitungen
- *Die Motorantennen-Steuerleitung (blau) liefert +12 V Gleichstrom, wenn Sie das Gerät einschalten.*
- *Wenn das Fahrzeug mit einer in der Heck-/Seitenfensterscheibe integrierten UKW/MW/LW-Antenne ausgestattet ist, muß die Motorantennen-Steuerleitung (blau) oder die Zubehörstromversorgungsleitung (rot) an den Stromversorgungsanschluß des vorhandenen Antennenverstärkers angeschlossen werden. Näheres dazu erfahren Sie bei Ihrem Händler.*
- *Es kann nur eine Motorantenne mit Relaiskästchen angeschlossen werden.*

Warnung
Wenn Sie eine Motorantenne ohne Relaiskästchen verwenden, kann durch Anschließen dieses Geräts mit dem mitgelieferten Netzverbindungskabel ⑤ die Antenne beschädigt werden.

Stromversorgung des Speichers
Wenn das gelbe Stromversorgungskabel angeschlossen ist, wird der Speicher stets (auch bei ausgeschalteter Zündung) mit Strom versorgt.

Hinweise zum Lautsprecheranschluß
- *Schalten Sie das Gerät aus, bevor Sie die Lautsprecher anschließen.*
- *Verwenden Sie Lautsprecher mit einer Impedanz zwischen 4 und 8 Ohm und ausreichender Belastbarkeit. Ansonsten können die Lautsprecher beschädigt werden.*
- *Verbinden Sie die Lautsprecheranschlüsse nicht mit dem Wagenchassis, und verbinden Sie auch nicht die Anschlüsse des rechten mit denen des linken Lautsprechers.*
- *Versuchen Sie nicht, Lautsprecher parallel anzuschließen.*
- *An die Lautsprecheranschlüsse dieses Geräts dürfen nur Passivlautsprecher angeschlossen werden. Schließen Sie keine Aktivlautsprecher (Lautsprecher mit eingebauten Verstärkern) an, da diese sonst beschädigt werden können.*

1* ***Hinweis zum Anschließen der Antenne*
Wenn Ihre Fahrzeugantenne der ISO-Norm (ISO = International Organization for Standardization - Internationale Normungsgemeinschaft) entspricht, schließen Sie sie mit Hilfe des mitgelieferten Adapters ⑦ an. Verbinden Sie zuerst die Fahrzeugantenne mit dem mitgelieferten Adapter, und verbinden Sie diesen dann mit der Antennenbuchse des Hauptgeräts.

Connexions

Précautions

- Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Veiller à ne pas coincer de fils entre une vis et la carrosserie de la voiture ou cet appareil ou encore entre des pièces mobiles comme les glissières des sièges, etc.
- Brancher le cordon d'alimentation ⑤ sur l'appareil et les haut-parleurs avant de le brancher sur le connecteur d'alimentation auxiliaire.
- **Rassembler tous les fils de terre en un point de masse commun.**
- Brancher le câble jaune à un circuit libre de la voiture dont la capacité nominale est supérieure à la capacité du fusible de l'appareil. Si vous branchez cet appareil en série avec d'autres composants stéréo, le circuit de la voiture auquel ils sont raccordés doit afficher une capacité nominale supérieure à la somme des capacités individuelles de chaque composant. S'il n'y a pas de circuits de voiture affichant une capacité égale à la capacité du fusible de l'appareil, brancher l'appareil directement à la batterie. Si aucun circuit de voiture n'est disponible pour connecter cet appareil, brancher l'appareil à un circuit de voiture supérieur à la capacité du fusible de l'appareil de telle sorte que si l'appareil grille son fusible, aucun autre circuit ne soit coupé.
- Veillez à isoler tout fil ou câble non connectés avec du chatterton approprié.
- Lors de l'installation dans une voiture dont le contact ne possède pas de position ACC (accessoire), raccordez le fil d'entrée électrique à la borne d'alimentation +12 V alimentée en permanence avec le fil jaune.

Avertissement en cas d'installation dans une voiture dont le contact ne comporte pas de position ACC (accessoires)

N'oubliez pas d'appuyer sur le bouton (OFF) de l'appareil pendant deux secondes après avoir coupé le moteur de façon à désactiver l'affichage de l'horloge.
Si vous appuyez brièvement sur (OFF), l'affichage de l'horloge n'est pas désactivé, ce qui provoque une usure de la batterie.

Remarques sur le diagramme de connexion

Remarques sur les fils de contrôle
- *Le fil de commande d'antenne électrique (bleu) fournit une alimentation de + 12 V CC lorsque vous mettez l'appareil sous tension.*
- *Si votre voiture est équipée d'une antenne FM/MW/LW intégrée dans la vitre arrière/latérale, vous devez raccorder le fil de commande d'antenne électrique (bleu) ou le fil d'entrée d'alimentation d'accessoire (rouge) à la borne d'alimentation de l'amplificateur d'antenne existant. Pour plus de détails, consultez votre revendeur.*
- *Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.*

Avertissement
Si vous disposez d'une antenne électrique sans boîtier de relais, le branchement de cet appareil au moyen du cordon d'alimentation fourni ⑤ risque d'endommager l'antenne.

Connexion pour la conservation de la mémoire
Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs
- *Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas connecter d'enceintes acoustiques actives (avec amplificateurs intégrés) aux bornes d'enceinte de cet appareil, pour éviter d'endommager les enceintes. Veiller à raccorder des enceintes passives.*

1* ***Remarque sur le raccordement de l'antenne*
Si votre antenne de voiture est de type ISO (organisation internationale de normalisation), utilisez l'adaptateur fourni ⑦ pour la raccorder. Raccordez d'abord l'antenne de voiture à l'adaptateur fourni et, ensuite, à la prise d'antenne de l'appareil principal.

Collegamenti

Attenzione

- Questo apparecchio è stato progettato per l'uso solo a 12 V CC con massa negativa.
- Far attenzione che i cavi non rimangano impigliati tra le viti e la carrozzeria della macchina o l'apparecchio o tra le parti mobili della macchina, come le guide di scorrimento del sedile, ecc.
- Collegare il cavo di collegamento dell'alimentazione ⑤ all'apparecchio e ai diffusori prima di collegarlo al connettore di alimentazione ausiliaria.
- **Portare tutti i cavi di massa a un punto di massa comune.**
- Collegare il cavo giallo a un circuito libero della macchina con potenza nominale superiore a quella del fusibile dell'apparecchio. Se si collega questo apparecchio in serie con altri componenti stereo, il circuito della macchina a cui sono collegati deve avere una potenza nominale superiore alla somma della potenza dei fusibili di ogni apparecchio. Se i circuiti della macchina non hanno potenza superiore a quella dei fusibili, collegare l'apparecchio direttamente alla batteria. Se non si hanno a disposizione circuiti della macchina per collegare l'apparecchio, collegare l'apparecchio a un circuito della macchina con potenza nominale superiore a quella del fusibile dell'apparecchio di modo che, se il fusibile dell'apparecchio salta, gli altri circuiti non verranno tagliati fuori.
- Per sicurezza, assicurarsi di isolare qualsiasi cavo non collegato mediante apposito nastro.
- Se si effettua l'installazione su un'auto priva della posizione ACC (accessoria) sull'interruttore di accensione, collegare il cavo rosso di ingresso dell'alimentazione al terminale di alimentazione +12 V continuamente alimentato a sua volta dal cavo giallo.

Informazioni importanti per quando si effettua l'installazione su un'auto sprovvista della posizione ACC sull'interruttore di accensione

Assicurarsi di premere (OFF) sull'apparecchio per due secondi per spegnere il display dell'orologio dopo che il motore è stato spento.
Quando si preme (OFF) per un istante, il display dell'orologio non si spegne causando in questo modo lo scaricamento della batteria.

Note sul diagramma di collegamento

Note sui cavi di controllo
- *Il cavo di controllo dell'antenna elettrica (blu) fornisce corrente continua da +12 V quando viene acceso l'apparecchio.*
- *Se l'auto è dotata di un'antenna FM/MW/LW incorporata, situata sul vetro posteriore/laterale, è necessario collegare il cavo di controllo dell'antenna elettrica (blu) o il cavo di ingresso dell'alimentazione accessorio (rosso) al terminale dell'alimentazione del preamplificatore dell'antenna esistente. Per ulteriori informazioni, contattare un rivenditore.*
- *Non è possibile usare un'antenna elettrica senza scatola a relè con questo apparecchio.*

Avvertenza
Quando si collega l'apparecchio con il cavo di alimentazione in dotazione ⑤, si potrebbe danneggiare l'antenna elettrica se questa non ha la scatola a relè.

Collegamento per la conservazione della memoria
Quando il cavo di ingresso alimentazione giallo è collegato, viene sempre fornita alimentazione al circuito di memoria anche quando la chiavetta di accensione è spenta.

Note sul collegamento dei diffusori
- *Prima di collegare i diffusori spegnere l'apparecchio.*
- *Usare diffusori con impedenza compresa tra 4 e 8 ohm e con capacità di potenza adeguata, altrimenti i diffusori si potrebbero danneggiare.*
- *Non collegare i terminali del sistema diffusori al telaio dell'auto e non collegare i terminali del diffusore destro a quelli del diffusore sinistro.*
- *Non collegare i diffusori in parallelo.*
- *Non collegare alcun diffusore attivo (con amplificatore incorporato) ai terminali dei diffusori dell'apparecchio in quanto si potrebbero danneggiare i diffusori attivi. Assicurarsi di collegare diffusori passivi a questi terminali.*

1* ***Nota per il collegamento dell'antenna*
Se l'antenna della macchina è di tipo ISO (International Organization Standardization), utilizzare l'adattatore ⑦ in dotazione per collegarla. Collegare prima l'antenna della macchina all'adattatore in dotazione, quindi collegarla alla presa dell'antenna dell'apparecchio principale.

Aansluitingen

Let op!

- Dit apparaat is ontworpen voor gebruik op gelijkstroom van een 12 Volts auto-accu, negatief geaard.
- Zorg ervoor dat er geen snoeren geklemd zitten tussen een schroef en het koetswerk, het toestel of bewegende onderdelen zoals de zetelrail, enz.
- Sluit het netsnoer ⑤ aan op het toestel en de luidsprekers vooraleer u het op de hulpvoedingsaansluiting aansluit.
- **Sluit alle aarddraden op een gemeenschappelijk aardpunt aan.**
- Sluit het gele snoer aan op een vrij autocircuit met een capaciteit die hoger ligt dan die van de toestelzekering. Als u dit toestel in serie schakelt met andere audiocomponenten, moet de capaciteit van het autocircuit waarop ze zijn aangesloten hoger zijn dan de som van de zekeringcapaciteit van elke component afzonderlijk. Als er geen autocircuits een even hoge capaciteit hebben als de toestelzekering, moet het toestel rechtstreeks worden aangesloten op de accu. Als er geen autocircuits beschikbaar zijn om dit toestel aan te sluiten, moet u het toestel aansluiten op een autocircuit met een hogere capaciteit dan die van de toestelzekering. Indien de toestelzekering dan doorbrandt, worden geen andere circuits onderbroken.
- Voorzie niet aangesloten draden om veiligheidsredenen altijd van isolatietape.
- Bij montage in een auto zonder ACC (accessory) positie op het contactslot, verbindt u de rode voedingsdraad met de +12 V aansluiting die altijd is bekrachtigd met de gele draad.

Opgelet bij het monteren in een auto waarvan het contactslot geen ACC (accessory) stand heeft

Let erop dat u gedurende twee seconden (OFF) op het toestel indrukt om de tijdweergave uit te schakelen nadat u de motor heeft afgezet.
Wanneer u slechts even op (OFF) drukt, schakelt de tijdweergave niet uit, waardoor de batterij uitgeput raakt.

Opmerkingen bij het aansluitschema

Opmerking betreffende de aansluitsnoeren
- *De bedieningskabel (blauw) van de elektrische antenne levert 12 V gelijkstroom wanneer u het toestel aanschakelt.*
- *Als uw auto is voorzien van een FM/AM/LG antenne die in de achter-/zijruit is geïntegreerd, moet de elektrische antennebedieningskabel (blauw) of de accessoire-stroomdraad (rood) worden aangesloten op de voedingsingang van de bestaande antenneversterker. Voor meer gedetailleerde informatie dient u contact op te nemen met uw dealer.*
- *Met dit apparaat is het niet mogelijk een automatische antenne zonder relaishuis te gebruiken.*

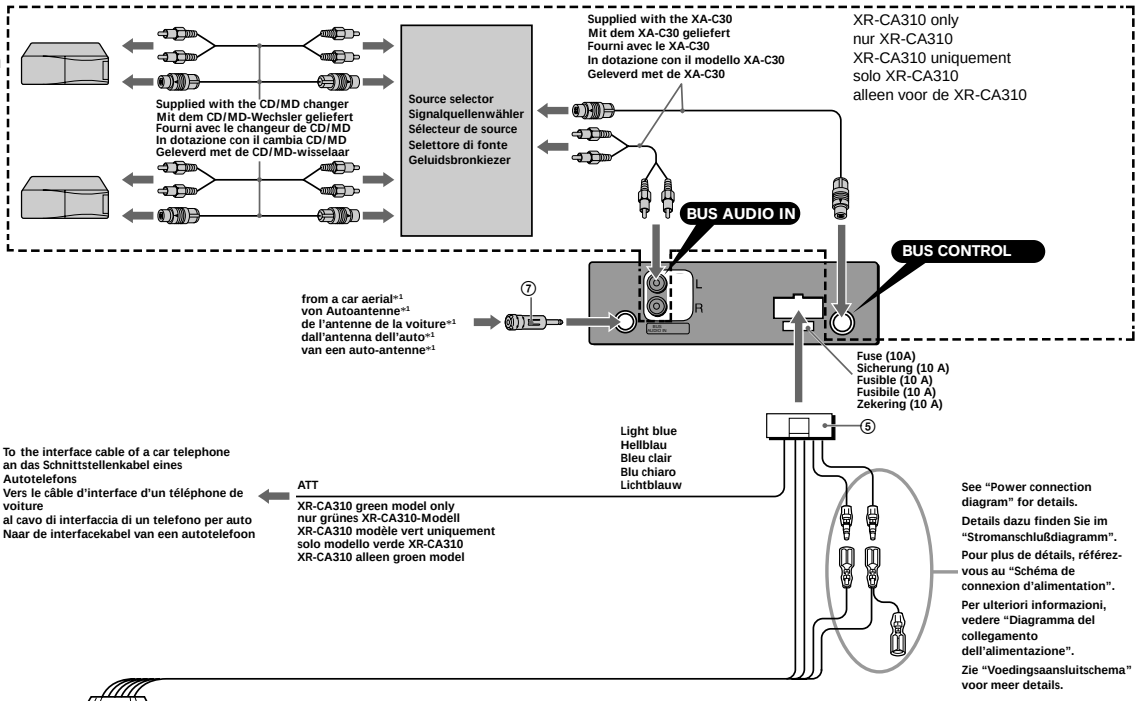
Opgelet
Indien u een elektrische antenne heeft zonder relaiskast, kan het aansluiten van deze eenheid met het bijgeleverde netsnoer ⑤ de antenne beschadigen.

Instandhouden van het geheugen
Zolang de gele stroomdraad is aangesloten, blijft de stroomvoorziening van het geheugen intact, ook wanneer het contact van de auto wordt uitgeschakeld.

Opmerkingen betreffende het aansluiten van de luidsprekers
- *Zorg dat het apparaat is uitgeschakeld, alvorens de luidsprekers aan te sluiten.*
- *Gebruik luidsprekers met een impedantie van 4 tot 8 Ohm en let op dat die het vermogen van de versterker kunnen verwerken. Als dit wordt verzuimd, kunnen de luidsprekers ernstig beschadigd raken.*
- *Verbind in geen geval de aansluitingen van de luidsprekers met het chassis van de auto en sluit de aansluitingen van de rechter en linker luidspreker niet op elkaar aan.*
- *Probeer nooit de luidsprekers parallel aan te sluiten.*
- *Sluit geen actieve luidsprekers (met ingebouwde versterkers) aan op de luidspreker-aansluiting van dit apparaat. Dit zal leiden tot beschadiging van de actieve luidsprekers. Sluit dus altijd uitsluitend luidsprekers zonder ingebouwde versterker aan.*

1* ***Opmerking bij de antenne-aansluiting*
Indien uw wagen is uitgerust met een antenne van het type ISO (International Organisation for Standardization), moet u die aansluiten met behulp van de meegeleverde adaptor ⑦. Sluit eerst de auto-antenne aan op de meegeleverde adaptor en vervolgens de antennestekker op het hoofdtoestel.

Connection diagram
Anschlußdiagramm
Schémas de connexion
Diagramma di collegamento
Aansluitschema



A

4	Yellow Gelb Jaune Giallo Geel	continuous power supply permanente Stromversorgung alimentation continue alimentazione continua continu voeding	7	Red Rot Rouge Rosso Rood	switched power supply geschaltete Stromversorgung alimentation commutée alimentazione commutata geschakelde voeding
5	Blue Blau Bleu Blu Blauw	power aerial control elektronische Antenne antenne électrique comando dell'antenna elettrica automatische antenne	8	Black Schwarz Noir Nero Zwart	earth Masse masse terra aarding

Positions 1, 2 ,3 and 6 do not have pins./ An Position 1, 2, 3 und 6 befinden sich keine Stifte./ Les positions 1, 2, 3 et 6 ne comportent pas de broche./ Le posizioni 1, 2, 3 e 6 non hanno piedini./ De posities 1, 2, 3 en 6 hebben geen pins.

B

1	Purple Violett Mauve Viola Paars	+	Speaker, Rear, Right Lautsprecher hinten rechts haut-parleur, arrière, droit Diffusore, posteriore, destro Luidspreker, achter, rechts	5	White Weiß Blanc Bianco Wit	+	Speaker, Front, Left Lautsprecher vorne links haut-parleur, avant, gauche Diffusore, anteriore, sinistro Luidspreker, voor, links
2		–	Speaker, Rear, Right Lautsprecher hinten rechts haut-parleur, arrière, droit Diffusore, posteriore, destro Luidspreker, achter, rechts	6		–	Speaker, Front, Left Lautsprecher vorne links haut-parleur, avant, gauche Diffusore, anteriore, sinistro Luidspreker, voor, links
3	Grey Grau Gris Grigio Grijs	+	Speaker, Front, Right Lautsprecher vorne rechts haut-parleur, avant, droit Diffusore, anteriore, destro Luidspreker, voor, rechts	7	Green Grün Vert Verde Groen	+	Speaker, Rear, Left Lautsprecher hinten links haut-parleur, arrière, gauche Diffusore, posteriore, sinistro Luidspreker, achter, links
4		–	Speaker, Front, Right Lautsprecher vorne rechts haut-parleur, avant, droit Diffusore, anteriore, destro Luidspreker, voor, rechts	8		–	Speaker, Rear, Left Lautsprecher hinten links haut-parleur, arrière, gauche Diffusore, posteriore, sinistro Luidspreker, achter, links

Negative polarity positions 2, 4, 6, and 8 have striped cords./ An den negativ gepolten Positionen (2, 4, 6 und 8) befinden sich gestreifte Adern./ Les positions de polarité négative 2, 4, 6 et 8 sont dotées de cordons rayés./ Le posizioni a polarità negativa 2, 4, 6 e 8 hanno cavi rigati./ De negatieve posities 2, 4, 6 en 8 hebben gestreepte kabels.

Power connection diagram

Auxiliary power connector may vary depending on the car. Check your car's auxiliary power connector diagram to make sure the connections match correctly. There are three basic types (illustrated below). You may need to switch the positions of the red and yellow leads in the car stereo's power connecting cord.
After matching the connections and switched power supply leads correctly, connect the unit to the car's power supply. If you have any questions and problems connecting your unit that are not covered in this manual, please consult the car dealer.

Stromanschlußdiagramm

Der Hilfsstromanschluß kann je nach Fahrzeugtyp unterschiedlich sein. Sehen Sie im Hilfsstromanschlußdiagramm für Ihr Fahrzeug nach, wie die Verbindung ordnungsgemäß vorgenommen werden muß. Es gibt, wie unten abgebildet, drei unterschiedliche Typen. Sie müssen möglicherweise die Position der roten und gelben Leitung im Stromversorgungskabel der Autoanlage tauschen.
Nehmen Sie die Verbindung der einzelnen Leitungen korrekt vor, und verbinden Sie dann das Gerät mit der Stromversorgung Ihres Fahrzeugs.
Wenn beim Anschließen des Geräts Fragen oder Probleme auftreten, die in dieser Bedienungsanleitung nicht erläutert werden, wenden Sie sich bitte an den Autohändler.

Schéma de connexion d'alimentation

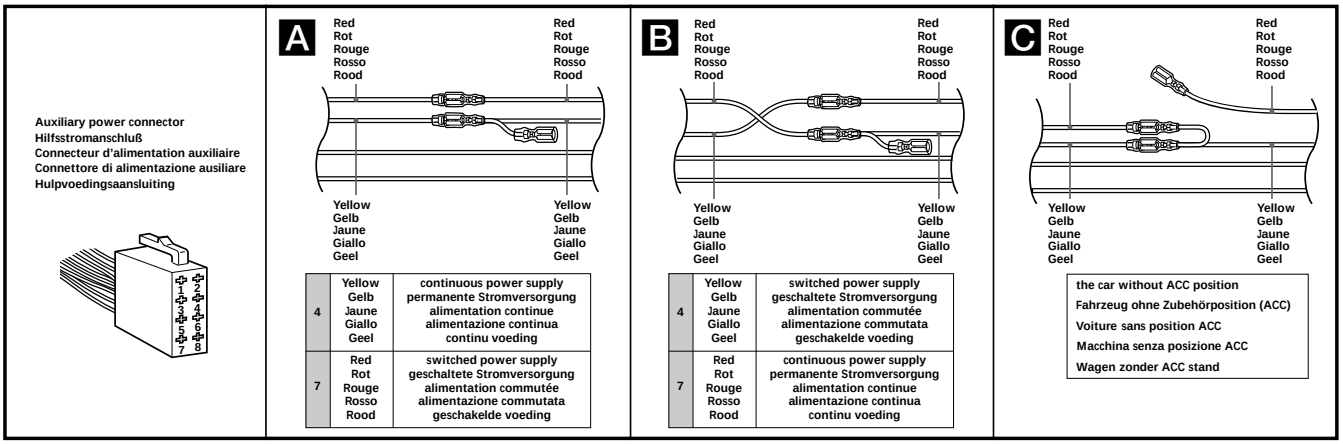
Le connecteur d'alimentation auxiliaire peut varier suivant le type de voiture. Vérifiez le schéma du connecteur d'alimentation auxiliaire de votre voiture pour vous assurer que les connexions correspondent. Il en existe trois types de base (illustrés ci-dessous). Il se peut que vous deviez intervertir la position des fils jaune et rouge du cordon d'alimentation de l'autoradio.
Après avoir établi les connexions et commuté correctement les fils d'alimentation, raccordez l'appareil à l'alimentation de la voiture. Si vous avez des questions ou des difficultés à propos de cet appareil qui ne sont pas abordées dans le présent mode d'emploi, consultez votre revendeur automobile.

Diagramma del collegamento dell'alimentazione

Il connettore di alimentazione ausiliaria può variare a seconda della macchina. Controllare il diagramma del connettore di alimentazione ausiliaria della macchina per essere sicuri che le connessioni corrispondano correttamente. Vi sono tre tipi di base (illustrazione sotto). Potrà essere necessario cambiare le posizioni dei cavi rosso e giallo nel cavo di alimentazione dello stereo della macchina.
Dopo aver fatto corrispondere correttamente le connessioni e i cavi di alimentazione commutata, collegare l'apparecchio all'alimentazione della macchina.
Se si hanno domande o se sorgono problemi che non sono stati trattati nel manuale nel collegare l'apparecchio, contattare l'autoconcessionario.

Voedingsaansluitschema

De hulpvoedingsaansluiting kan verschillen naargelang van de wagen. Controleer het voedingsaansluitschema dat bij dit toestel wordt geleverd om te zien of de aansluitingen kloppen. Er zijn drie basistypes (zie illustratie hieronder). U zal eventueel de positie van de rode en gele kabel in de stroomaansluitingskabel van de autoradio moeten verwisselen.
Als de aansluitingen en geschakelde voedingskabels kloppen, sluit u het toestel aan op de voeding van de wagen. Indien u nog vragen of problemen hebt in verband met het aansluiten van het toestel die niet in deze handleiding vermeld staan, raadpleeg dan de autodealer.


Auxiliary power connector
Hilfsstromanschluß
Connecteur d'alimentation auxiliaire
Connettore di alimentazione ausiliare
Hulpvoedingsaansluiting
A
B
C
Red
Rot
Rouge
Rosso
Rood
Yellow
Gelb
Jaune
Giallo
Geel
4 Yellow Gelb Jaune Giallo Geel — continuous power supply / permanente Stromversorgung / alimentation continue / alimentazione continua / continu voeding
7 Red Rot Rouge Rosso Rood — switched power supply / geschaltete Stromversorgung / alimentation commutée / alimentazione commutata / geschakelde voeding
4 Yellow Gelb Jaune Giallo Geel — switched power supply / geschaltete Stromversorgung / alimentation commutée / alimentazione commutata / geschakelde voeding
7 Red Rot Rouge Rosso Rood — continuous power supply / permanente Stromversorgung / alimentation continue / alimentazione continua / continu voeding
the car without ACC position
Fahrzeug ohne Zubehörposition (ACC)
Voiture sans position ACC
Macchina senza posizione ACC
Wagen zonder ACC stand

Connection example (XR-CA310 only)
Anschlußbeispiel (nur XR-CA310)
Exemple de raccordement (XR-CA310 uniquement)
Esempio di collegamento (solo XR-CA310)
Voorbeeldaansluitingen (alleen voor de XR-CA310)

Equipment used in illustrations (not supplied)
In Abbildungen dargestellte Geräte (nicht mitgeliefert)
Appareils utilisés dans les illustrations (non fournis)
Apparecchiatura utilizzata nelle illustrazioni (non in dotazione)
Apparatuur gebruikt voor illustratiedoeleinden (niet meegeleverd)

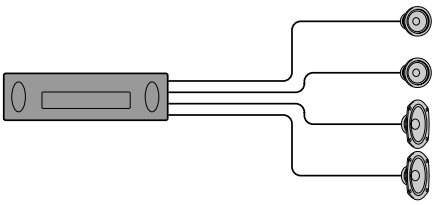
Front speaker
Frontlautsprecher
Haut-parleur frontal
Diffusore anteriore
Voorluidspreker

CD/MD changer
CD/MD-Wechsler
Changeur de CD/MD
Cambia CD/MD
CD/MD-wisselaar

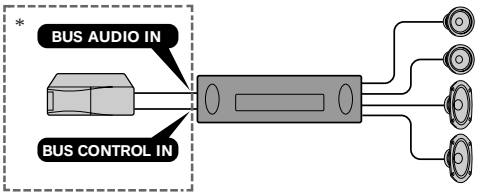
Rear speaker
Hecklautsprecher
Haut-parleur arrière
Diffusore posteriore
Achterluidspreker

For connecting two or more changers, the source selector XA-C30 (optional) is necessary.
Zum Anschließen von zwei oder mehr Wechslern wird der gesondert erhältliche Signalquellenwähler XA-C30 benötigt.
Dans le cas du raccordement de deux changeurs ou plus, le sélecteur de source XA-C30 (optionnel) est indispensable.
Per collegare due o più cambia CD o MD, è necessario utilizzare il selettore di fonte XA-C30 (opzionale).
Om twee of meer wisselaars aan te sluiten, hebt u de geluidsbronkiezer XA-C30 (optioneel) nodig.

A



B



*** XR-CA310 only**
nur XR-CA310
XR-CA310 uniquement
solo XR-CA310
alleen voor de XR-CA310

Notes
- *Be sure to connect the earth cord before connecting the amplifier.*
- *If you connect an optional power amplifier and do not use the built-in amplifier, the beep sound will be deactivated.*

Hinweise
- *Schließen Sie unbedingt zuerst das Massekabel an, bevor Sie den Verstärker anschließen.*
- *Wenn Sie einen gesondert erhältlichen Endverstärker anschließen und den integrierten Verstärker nicht benutzen, wird der Signalton deaktiviert.*

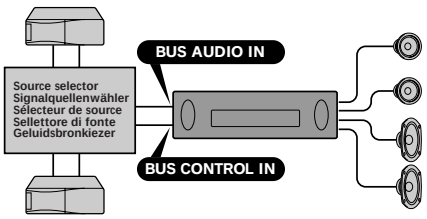
Remarques
- *Raccordez d'abord le fil de masse avant de connecter l'amplificateur.*
- *Si vous raccordez un amplificateur de puissance optionnel et que vous n'utilisez pas l'amplificateur intégré, le bip sonore est désactivé.*

Note
- *Assicurarsi di collegare il cavo di terra prima di collegare l'apparecchio all'amplificatore.*
- *Se si collega un amplificatore di potenza in dotazione e non si utilizza l'amplificatore incorporato, il segnale acustico verrà disattivato.*

Opmerkingen
- *Sluit eerst de massakabel aan alvorens de versterker aan te sluiten.*
- *Als u een los verkrijgbare vermogensversterker aansluit en de ingebouwde versterker niet gebruikt, is de pieptoon uitgeschakeld.*

C

XR-CA310 only
nur XR-CA310
XR-CA310 uniquement
solo XR-CA310
alleen voor de XR-CA310



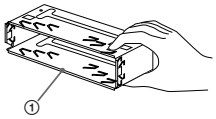
Cautions
- Cautionary notice for handling the bracket ①.
  Handle the bracket carefully to avoid injuring your fingers.
- Remove the protection collar ⑥ before installing.

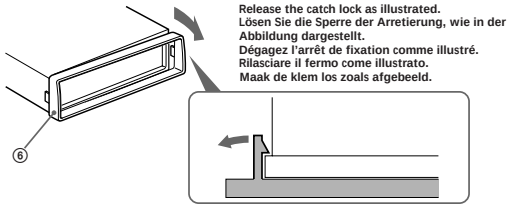
Sicherheitshinweise
- Sicherheitshinweis zum Umgang mit der Halterung ①.
  Seien Sie beim Umgang mit der Halterung vorsichtig, damit Sie sich nicht die Hände verletzen.
- Nehmen Sie vor der Installation das Schutzmaterial ⑥ ab.

Avertissements
- Remarque importante pour la manipulation du support ①.
  Manipulez précautionneusement le support pour éviter de vous blesser aux doigts.
- Déposez le collier de protection ⑥ avant l'installation.

Attenzione
- Avvertenza sulla manipolazione della staffa ①.
  Maneggiare la staffa con cautela per evitare di ferirsi le mani.
- Rimuovere il collare di protezione ⑥ prima dell'installazione.

Opgelet
- Spring voorzichtig om met de beugel ①.
  Houd de beugel voorzichtig vast zodat u uw vingers niet verwondt.
- Verwijder de beschermrand ⑥ voor het installeren.



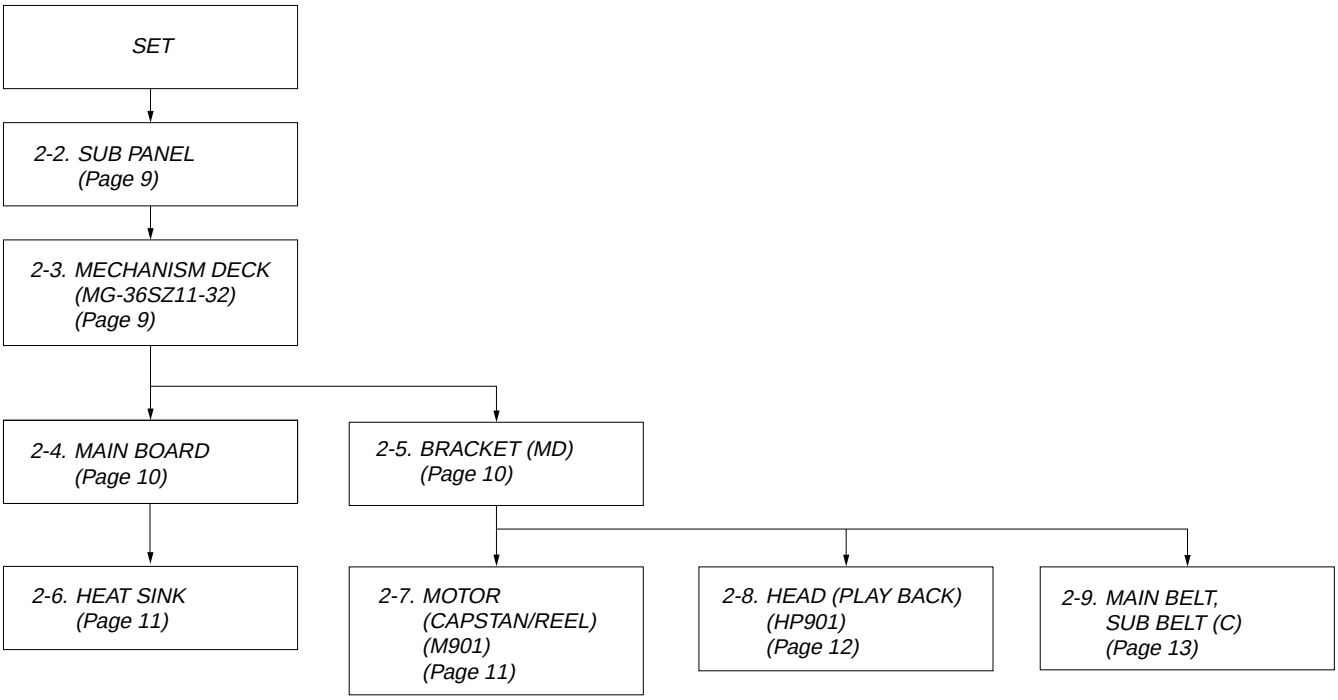


Release the catch lock as illustrated.
Lösen Sie die Sperre der Arretierung, wie in der Abbildung dargestellt.
Dégagez l'arrêt de fixation comme illustré.
Rilasciare il fermo come illustrato.
Maak de klem los zoals afgebeeld.

SECTION 2
DISASSEMBLY

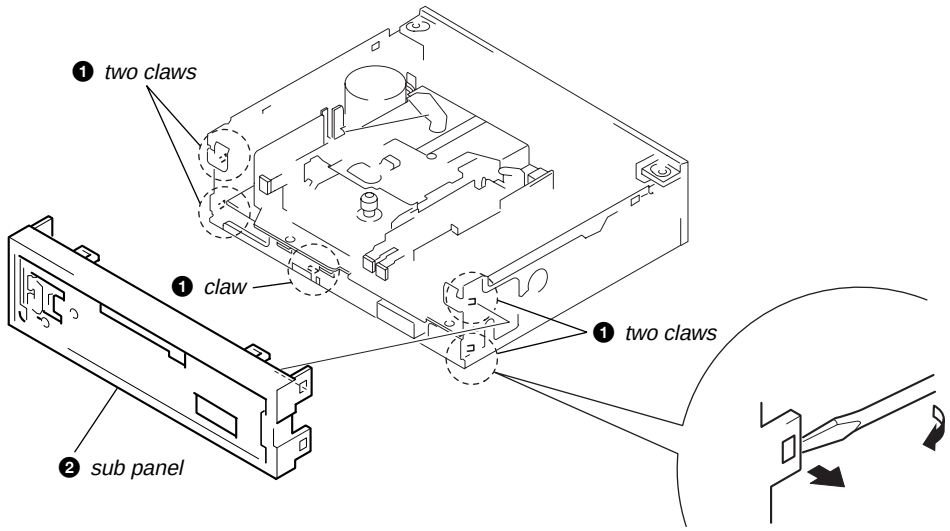
• This set can be disassembled in the order shown below.

2-1. DISASSEMBLY FLOW

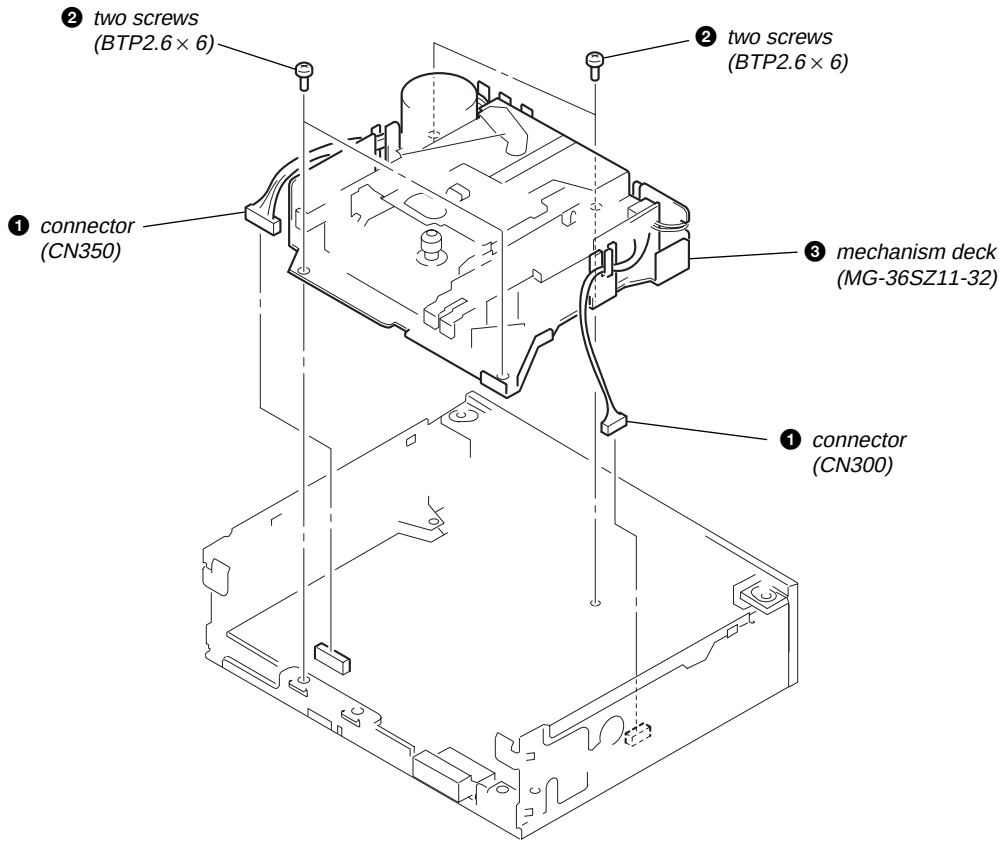


Note: Follow the disassembly procedure in the numerical order given.

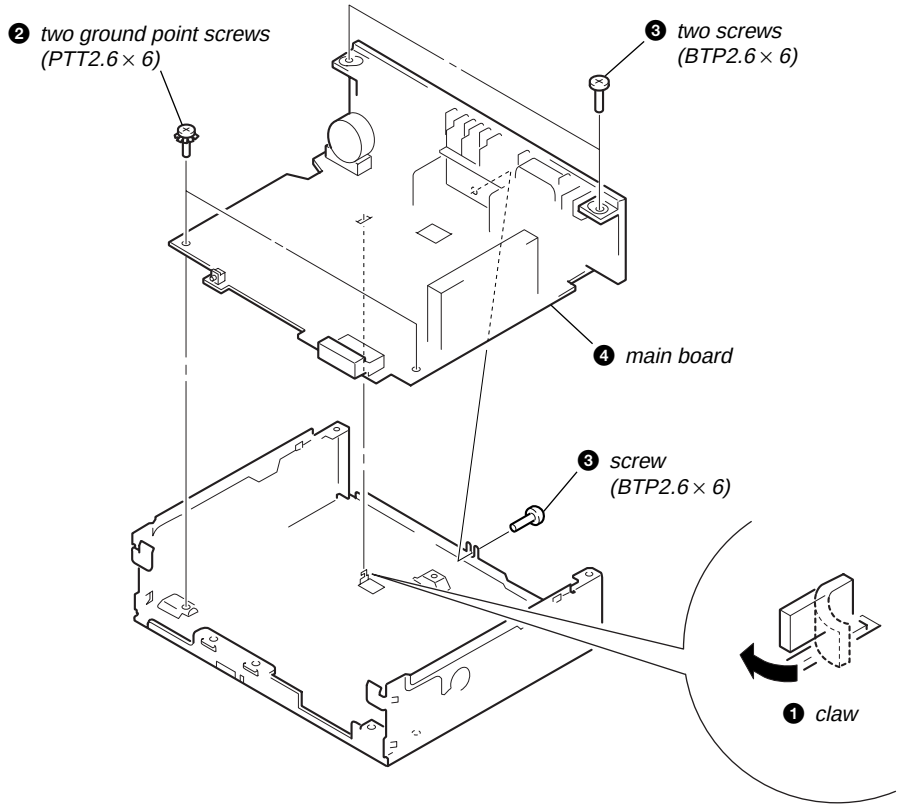
2-2. SUB PANEL



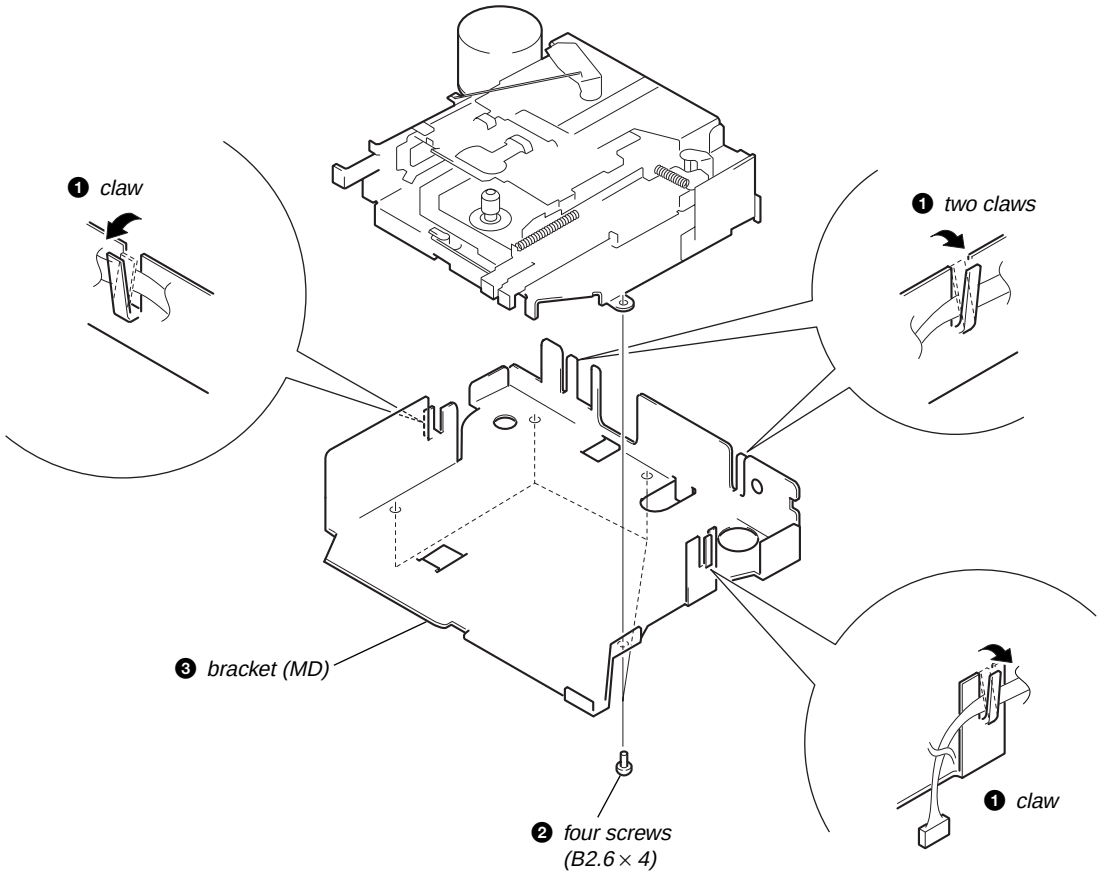
2-3. MECHANISM DECK (MG-36SZ11-32)



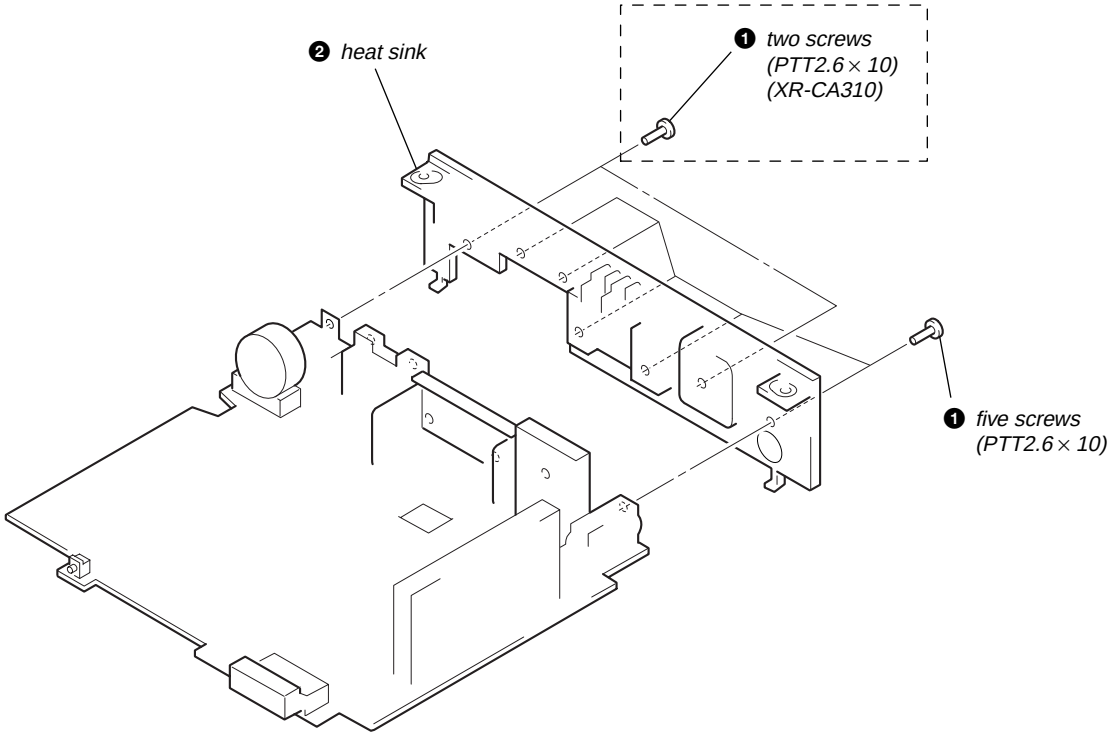
2-4. MAIN BOARD



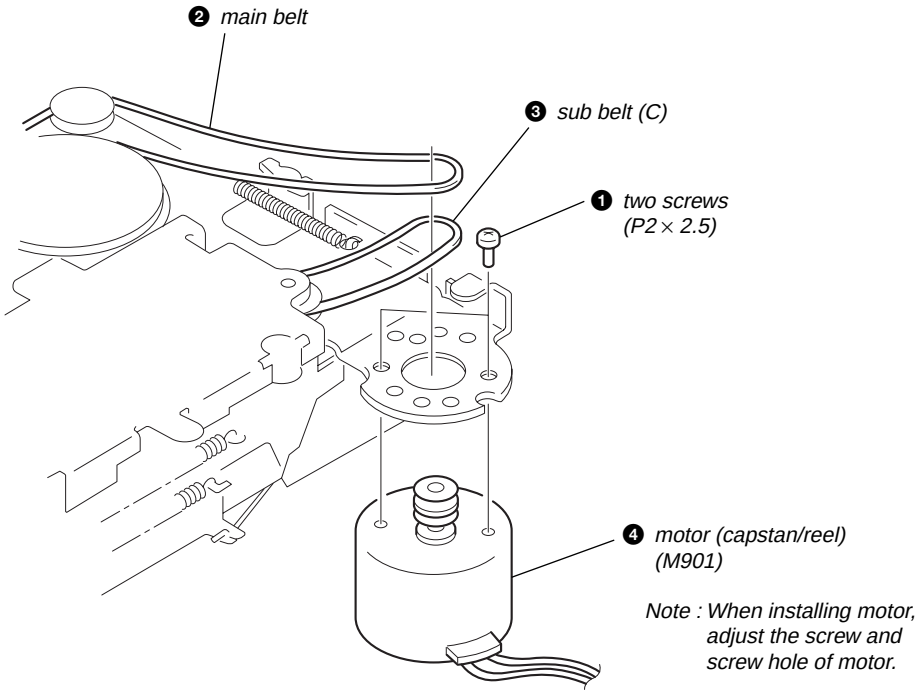
2-5. BRACKET (MD)



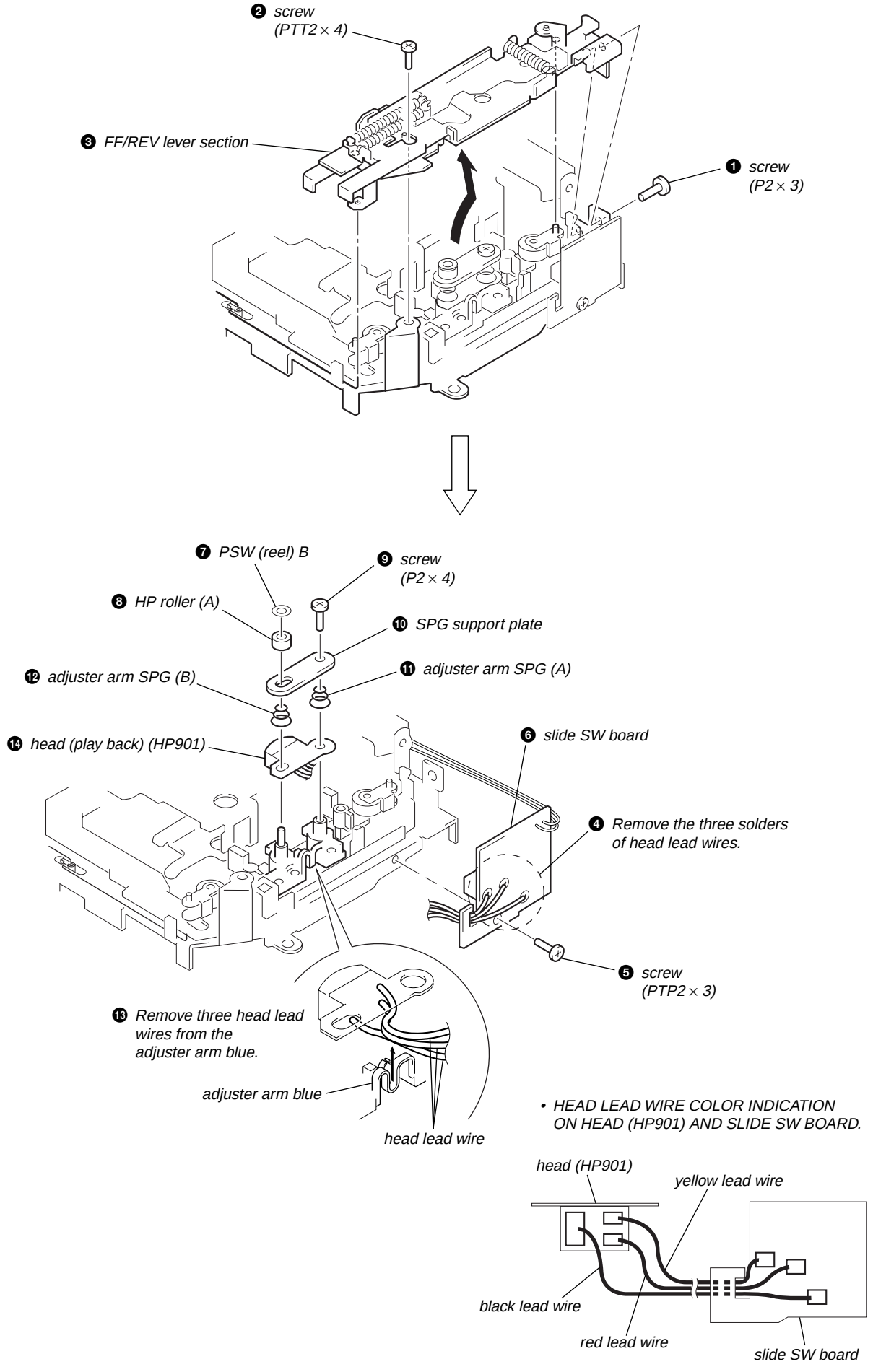
2-6. HEAT SINK



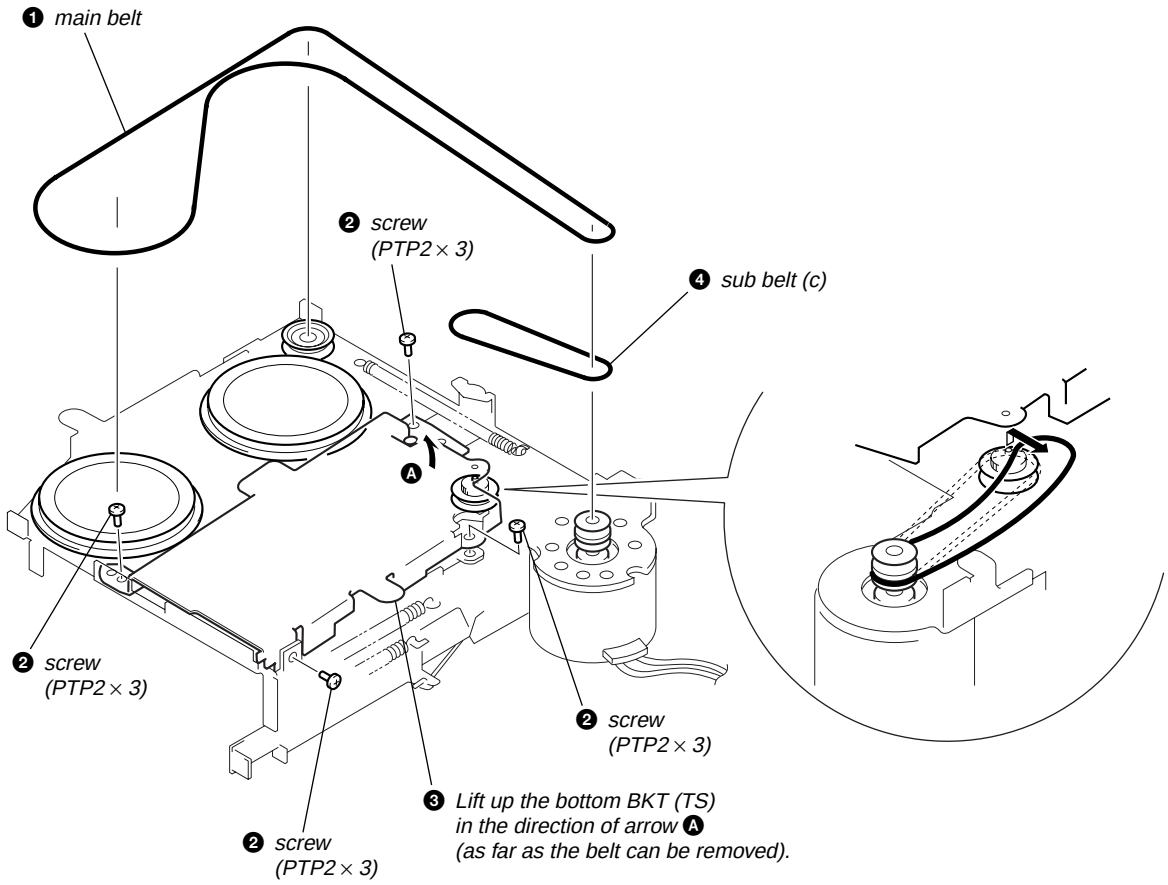
2-7. MOTOR (CAPSTAN/REEL) (M901)



2-8. HEAD (PLAY BACK) (HP901)


❷ screw (PTT2 × 4)
❸ FF/REV lever section
❶ screw (P2 × 3)
❼ PSW (reel) B
❾ screw (P2 × 4)
❽ HP roller (A)
❿ SPG support plate
⓬ adjuster arm SPG (B)
⓫ adjuster arm SPG (A)
⓮ head (play back) (HP901)
❻ slide SW board
❹ Remove the three solders of head lead wires.
❺ screw (PTP2 × 3)
⓭ Remove three head lead wires from the adjuster arm blue.
adjuster arm blue
head lead wire
• HEAD LEAD WIRE COLOR INDICATION ON HEAD (HP901) AND SLIDE SW BOARD.
head (HP901)
yellow lead wire
black lead wire
red lead wire
slide SW board

2-9. MAIN BELT, SUB BELT (C)


❶ main belt
❷ screw (PTP2 × 3)
❹ sub belt (c)
Ⓐ
❷ screw (PTP2 × 3)
❷ screw (PTP2 × 3)
❷ screw (PTP2 × 3)
❸ Lift up the bottom BKT (TS) in the direction of arrow Ⓐ (as far as the belt can be removed).

SECTION 3
MECHANICAL ADJUSTMENTS

1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head pinch roller
   rubber belt capstan
   idler
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. The adjustments should be performed with the power supply voltage (14.4 V) unless otherwise noted.

Note: With this set, it is not necessary to apply suitable locking compound to the parts after the azimuth adjustment.

• Torque Measurement

Mode	Torque Meter	Meter Reading
Forward	CQ-102C	2.46 – 5.39 mN•m (25 – 55 g•cm) (0.35 – 0.76 oz•inch)
Forward Back Tension	CQ-102C	0.15 – 0.39 mN•m (1.5 – 4 g•cm) (0.02 – 0.06 oz•inch)
Reverse	CQ-102RC	2.46 – 5.39 mN•m (25 – 55 g•cm) (0.35 – 0.76 oz•inch)
Reverse Back Tension	CQ-102RC	0.15– 0.39 mN•m (1.5 – 4 g•cm) (0.02 – 0.06 oz•inch)
FF, REW	CQ-201B	4.91 – 14.70 mN•m (50 – 150 g•cm) (0.69 – 2.08 oz•inch)

• Tape Tension Measurement

Mode	Tension Meter	Meter Reading
Forward	CQ-403A	more than 5.89 mN•m (more than 60 g) (more than 2.12 oz)
Reverse	CQ-403R	

SECTION 4
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM RDS S-Meter, FM Auto Seek/Stop Level and MW Auto Seek/Stop Level adjustments can be performed easier than it in ordinary procedure.

<Set the Test Mode>

1. Turn ON the regulated power supply. (All LEDs on the set lights up, and the clock is displayed.)
   Note: Press the [OFF] button, if the clock is not displayed.
2. Push the [4] button.
3. Push the [5] button.
4. Press the [1] button for more than two seconds.
5. Then the display indicates all lights, the test mode is set.

<Release the Test mode>

1. Push the [OFF] button.

TAPE DECK SECTION

0 dB= 0.775 V

1. The adjustments should be performed in the order given in this service manual.
2. The adjustments should be performed for both L-CH and R-CH.

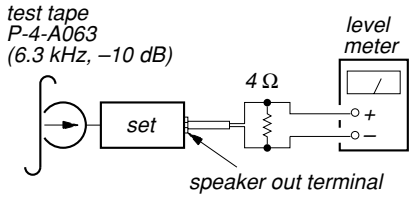
Test Tape

Type	Signal	Used for
P-4-A063	6.3 kHz, –10 dB	head azimuth adjustment
WS-48A	3 kHz, 0 dB	tape speed adjustment

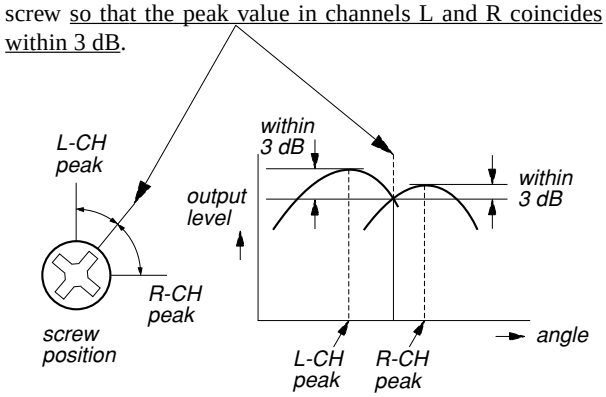
PB Head Azimuth Adjustment

Procedure:

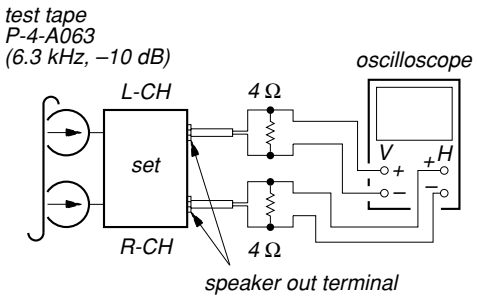
1. Put the set into the FWD PB mode.

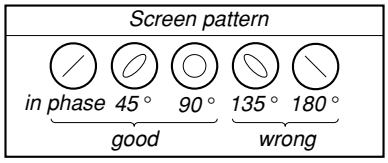


2. Turn the screw and check the output peak value. Adjust the screw so that the peak value in channels L and R coincides within 3 dB.



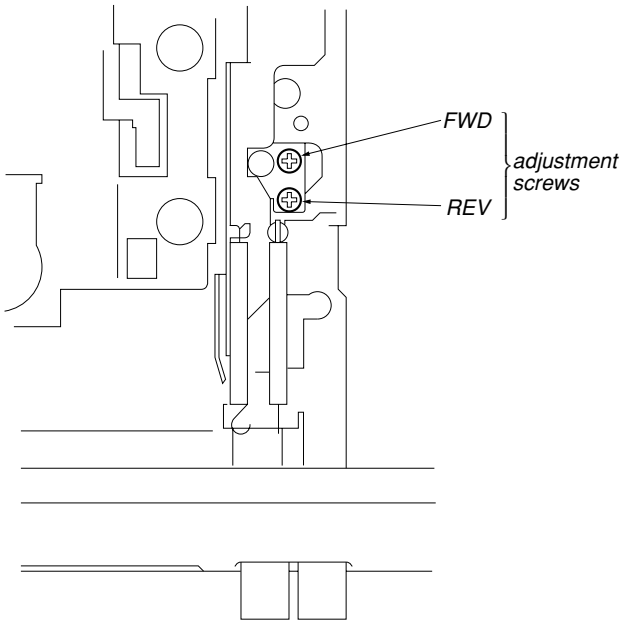
3. Check the phase in the FWD PB mode.





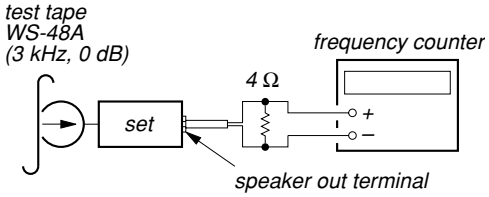
4. Repeat the above adjustment for the REV PB mode.
5. Check that output level difference between FWD PB mode and REV PB mode is within 4 dB.

Adjustment Location: PB head



Tape Speed Adjustment

Setting:



Procedure:

1. Put the set into the FWD PB mode.
2. Adjust adjustment resistor for inside capstan motor so that the reading on the frequency counter becomes in 3,015 Hz.

Specified Value: 2,940 to 3,090 Hz

Adjustment Location: See page 18.

TUNER SECTION

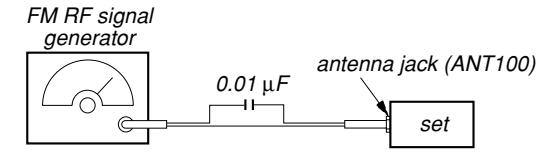
0 dB=1 μV

Cautions during repair
When the tuner unit is defective, replace it by a new one because its internal block is difficult to repair.

Note: Adjust the tuner section in the sequence shown below.
1. FM RDS S-Meter Adjustment
2. FM Auto Seek/Stop Level Adjustment
3. FM Stereo Separation Adjustment
4. MW Auto Seek/Stop Level Adjustment

FM RDS S-Meter Adjustment

Setting:
SOURCE (CA310) or TUNER (L210) button: FM



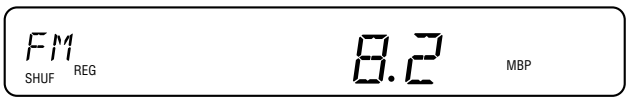
Carrier frequency : 98.00 MHz
Output level : 35 dB (56.2 μV)
Mode : mono
Modulation : no modulation

Procedure:
1. Set to the test mode. (see page 14)
2. Push the SOURCE (CA310) or TUNER (L210) button and set to FM.

Display

3. Push the 6 button.
4. Adjust RV100 on main board so that the display indication is "8.2".

Display

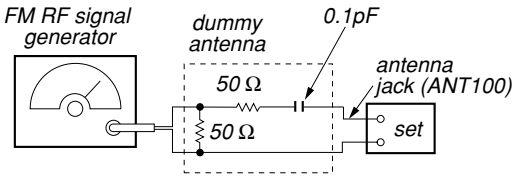


Specified Value: Display indication: 8.2 ± 0.2

Adjustment Location: See page 18.

FM Auto Seek/Stop Level Adjustment

Setting:
SOURCE (CA310) or TUNER (L210) button: FM



Carrier frequency : 98.00 MHz
Output level : 22 dB (12.6 μV)
Mode : mono
Modulation : 1 kHz, 22.5 kHz deviation (30%)

Procedure:
1. Set to the test mode. (see page 14)
2. Push the SOURCE (CA310) or TUNER (L210) button and set to FM.

Display

3. Adjust with the volume RV3 on TU100 so that the "FM" indication turns to "FM0" indication on the display window. But, in case of already indicated "FM0", turn the RV3 so that put out light "0" indication and adjustment.

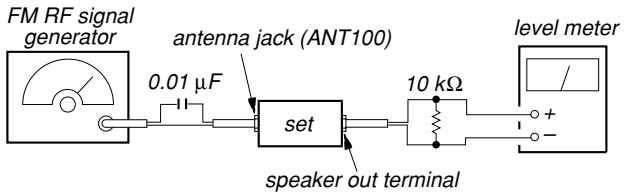
Display

Adjustment Location: See page 18.

FM Stereo Separation Adjustment

Setting:

SOURCE (CA310) or TUNER (L210) button: FM



Carrier frequency : 98.00 MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main: 1 kHz, 20 kHz deviation (26.7%)
sub: 1 kHz, 20 kHz deviation (26.7%)
19 kHz pilot: 7.5 kHz deviation (10%)

Procedure:

FM Stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV2 on TU100 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV2 on TU100 for minimum reading.

L-CH Stereo separation: Ⓐ-Ⓑ
R-CH Stereo separation: Ⓒ-Ⓓ
The separations of both channels should be equal.

Specified Value: Separation more than 30 dB

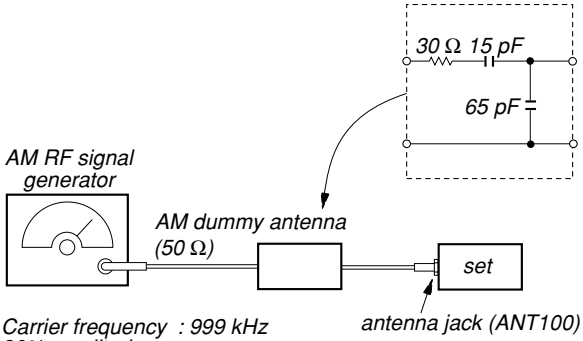
Adjustment Location: See page 18.

MW Auto Seek/Stop Level Adjustmant

Make this adjustment after “FM Auto Seek/Stop Level Adjustment”.

Setting:

SOURCE (CA310) or TUNER (L210) button: MW

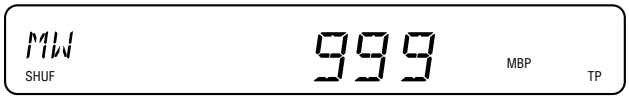


Carrier frequency : 999 kHz
30% amplitude modulation by 1 kHz signal
Output level : 33 dB (44.7 µV)

Procedure:

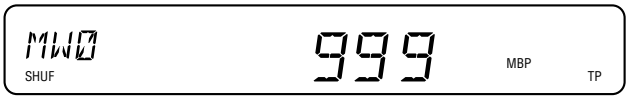
1. Set to the test mode. (see page 14)
2. Push the SOURCE (CA310) or TUNER (L210) button and set to FM.
3. Push the MODE button and set to MW.

Display



4. Adjust with the volume RV1 on TU100 so that the “MW” indication turns to “MW0” indication on the display window. But, in case of already indicated “MW0”, turn the RV1 so that put out light “0” indication and adjustment.

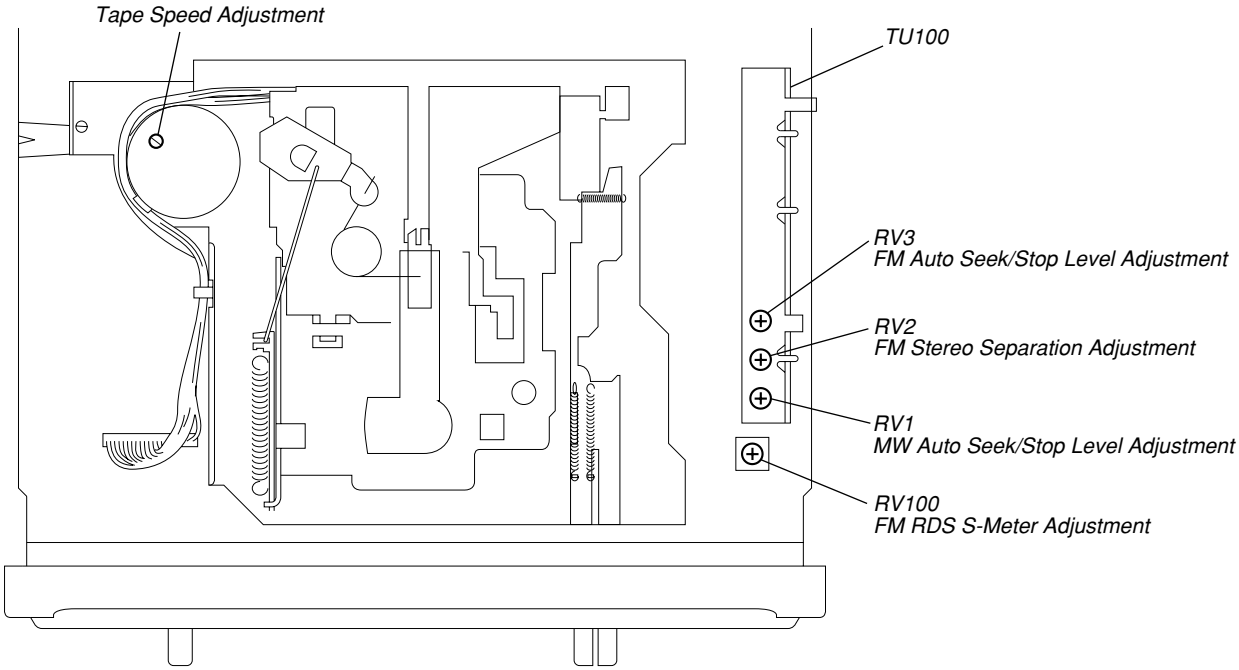
Display



Adjustment Location: See page 18.

Adjustment Location:

– SET UPPER VIEW –



SECTION 5
DIAGRAMS

5-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ● : Through hole.
- ▬ : Pattern from the side which enables seeing.
- – – – – : Carbon pattern.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

- Abbreviation
  AMBER : Amber illumination type
  GREEN : Green illumination type

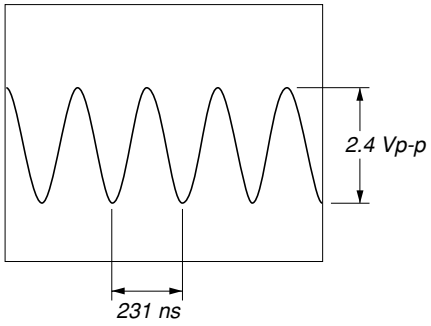
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW/LW
  ⟨⟨ ⟩⟩ : TAPE PLAYBACK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : MW/LW
  Σ : TAPE PLAYBACK
  ⇨ : BUS AUDIO IN
- Abbreviation
  AMBER : Amber illumination type
  GREEN : Green illumination type

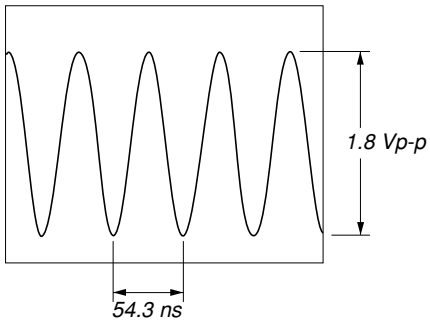
• **Waveforms**

– MAIN Board –

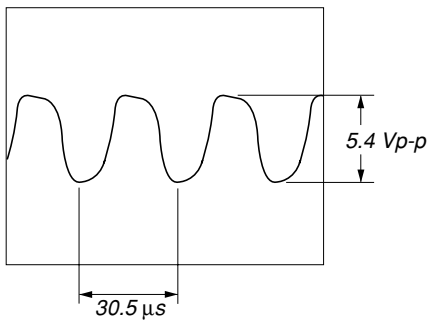
❶ IC200 ④ (OSCO)



❷ IC1 ⑫ (OSC2)

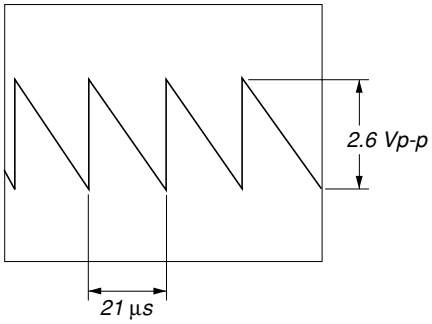


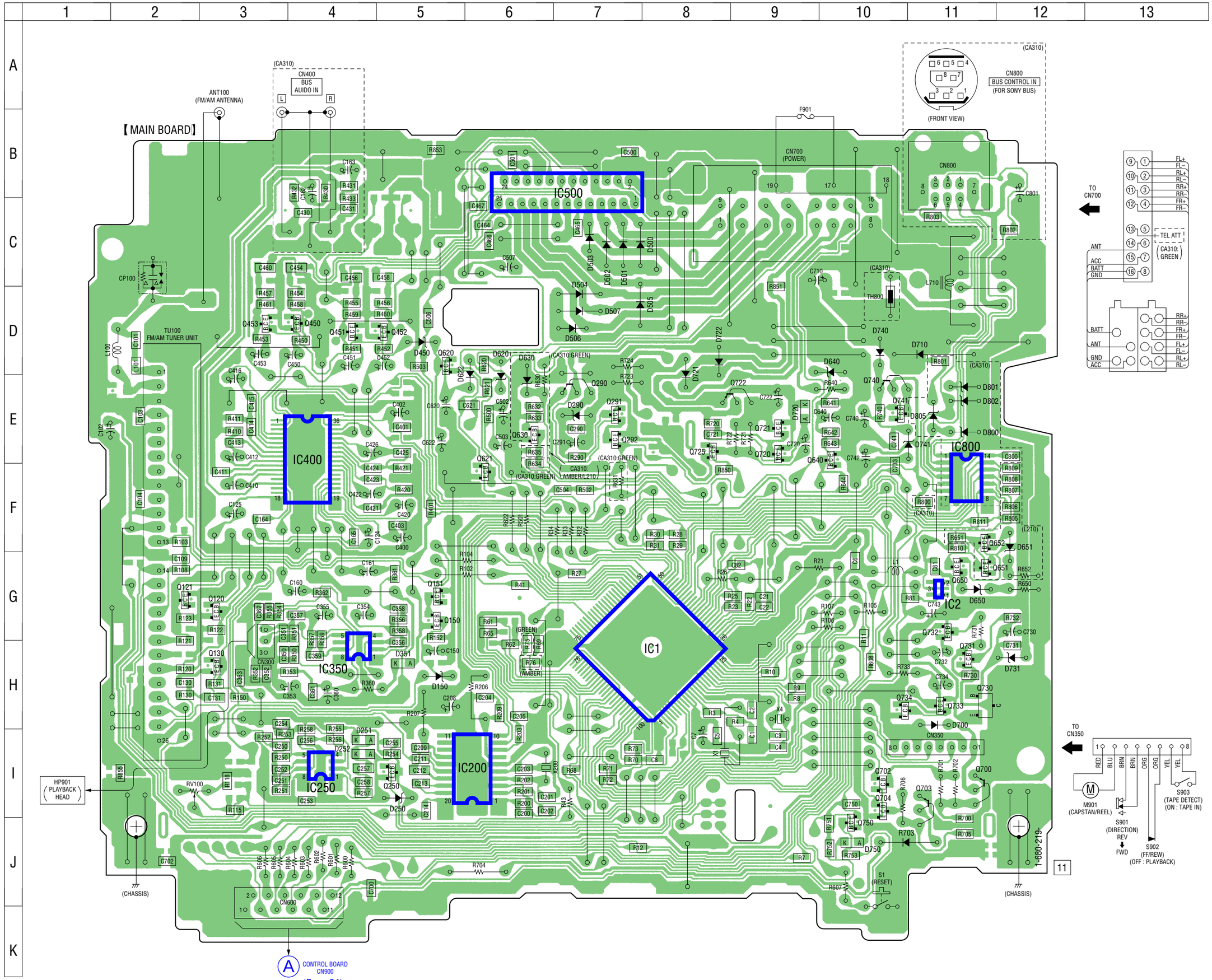
❸ IC1 ⑯ (XO)



– CONTROL Board –

❹ IC900 ⑬ (OSC)



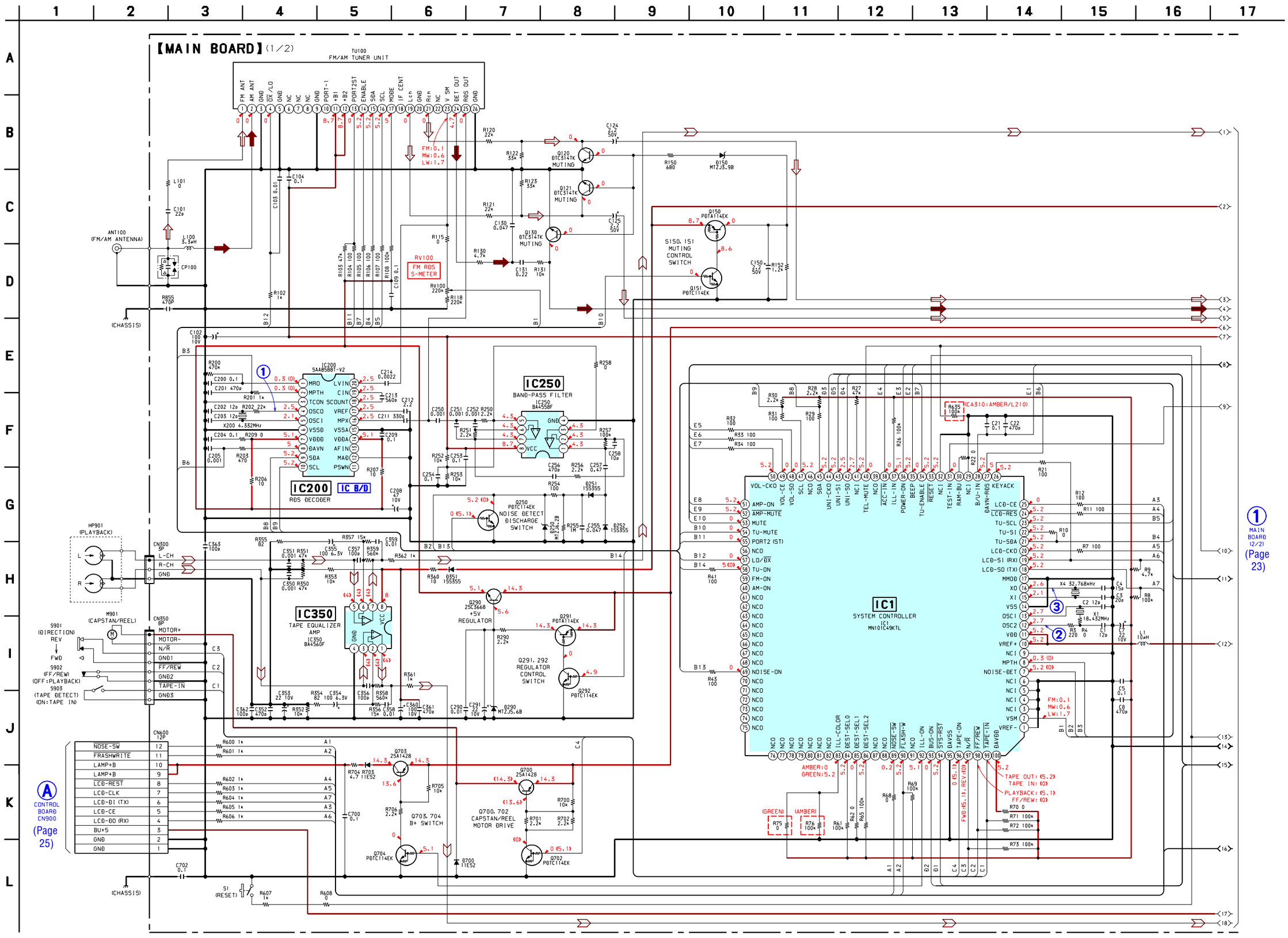


- **Semiconductor Location**

Ref. No.	Location
D150	H-5
D250	I-5
D251	I-4
D252	I-4
D290	E-7
D351	H-5
D450	D-5
D500	C-7
D501	C-7
D502	C-7
D503	C-7
D504	D-7
D505	D-7
D506	D-7
D507	D-7
D620	E-6
D622	E-6
D630	E-6
D640	D-10
D650	G-11
D651	F-12
D700	H-11
D710	D-11
D720	E-9
D721	D-8
D722	D-8
D731	H-12
D740	D-10
D741	E-10
D750	J-10
D800	E-11
D801	E-11
D802	E-11
D805	E-11
IC1	H-8
IC2	G-11
IC200	I-6
IC250	I-4
IC350	H-4
IC400	E-4
IC500	B-7
IC800	F-11
Q120	G-3
Q121	G-2
Q130	H-3
Q150	G-5
Q151	G-5
Q250	I-5
Q290	E-7
Q291	E-7
Q292	E-7
Q450	D-4
Q451	D-4
Q452	D-5
Q453	D-3
Q620	D-5
Q621	F-6
Q630	E-6
Q640	E-10
Q650	G-11
Q651	G-11
Q652	F-11
Q700	I-11
Q702	I-10
Q703	I-11
Q704	I-10
Q720	E-9
Q721	E-9
Q722	E-9
Q725	E-8
Q730	H-11
Q731	H-11
Q732	G-11
Q733	H-11
Q734	H-10
Q740	E-10
Q741	E-10
Q750	J-10
R703	J-10

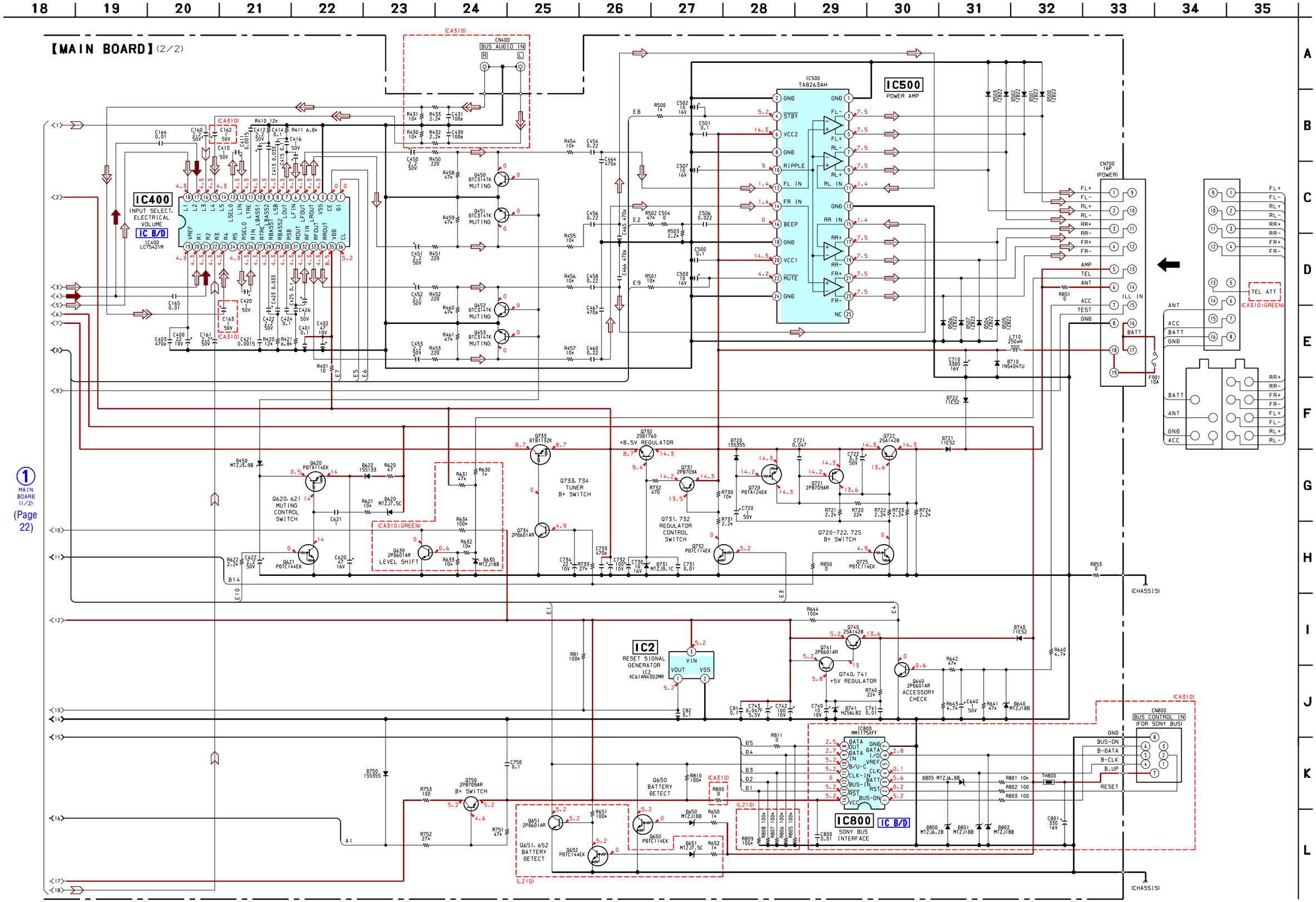
5-3. SCHEMATIC DIAGRAM – MAIN Board (1/2) –

• See page 20 for Waveforms. • See page 26 for IC Block Diagram.



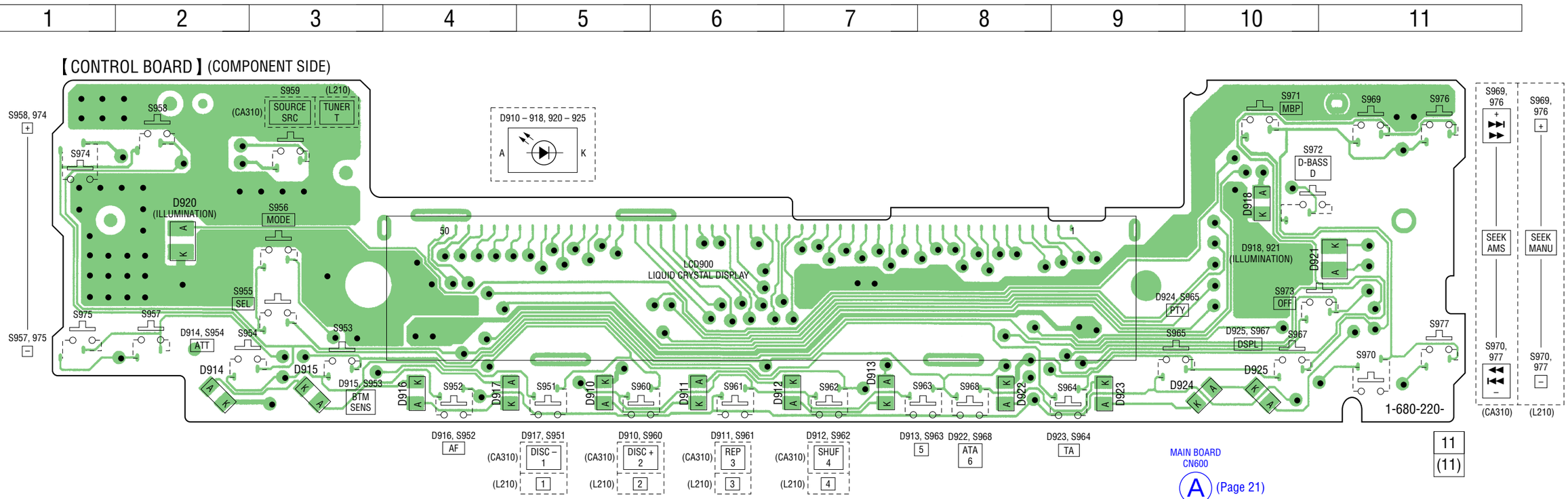
5-4. SCHEMATIC DIAGRAM – MAIN Board (2/2) –

• See page 26 for IC Block Diagrams.

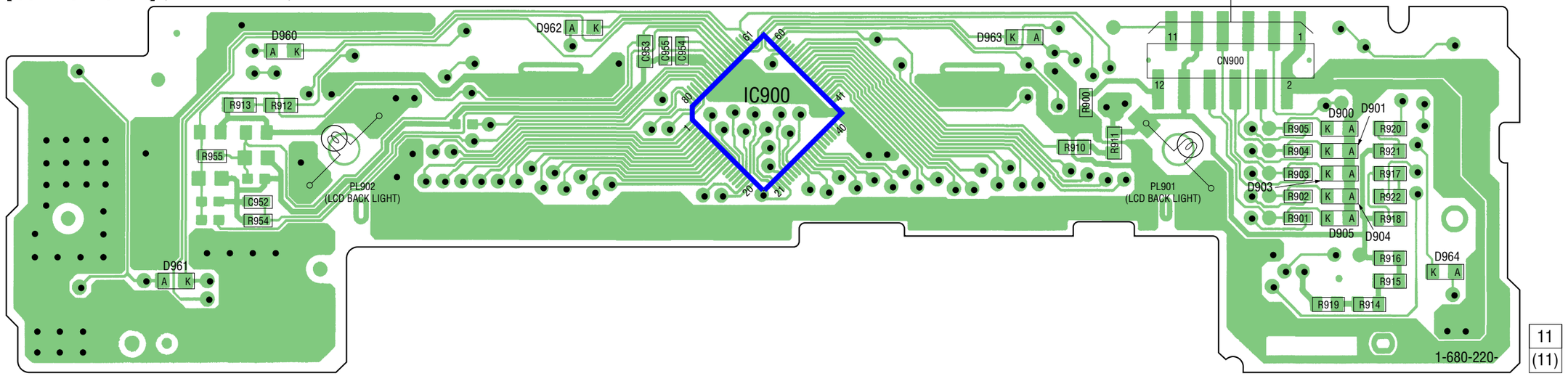


5-5. PRINTED WIRING BOARD – CONTROL Board –

【CONTROL BOARD】(COMPONENT SIDE)



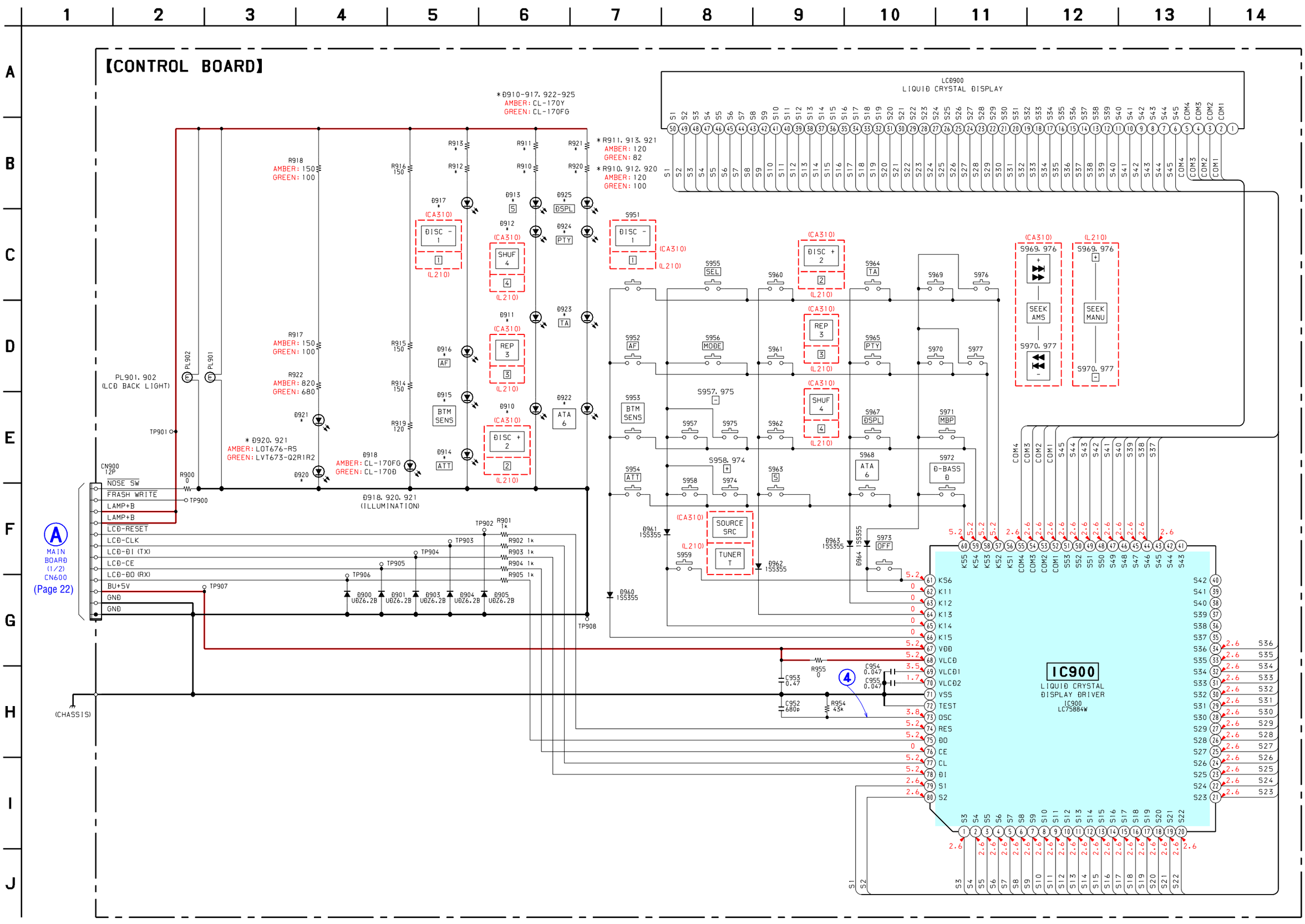
【CONTROL BOARD】(CONDUCTOR SIDE)



- **Semiconductor Location**

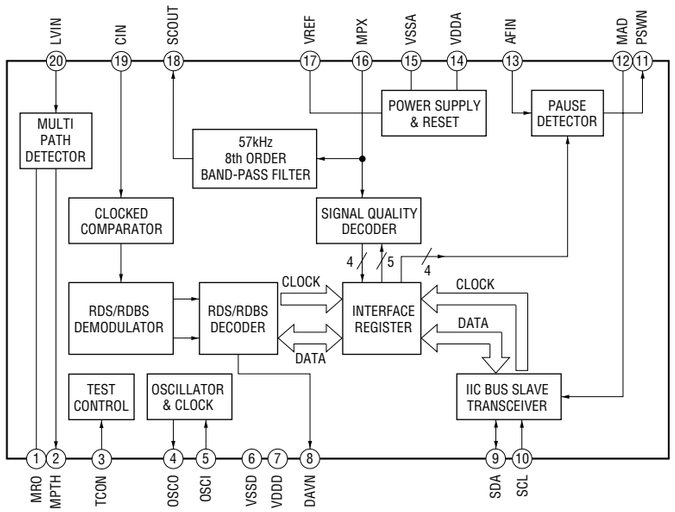
Ref. No.	Location	Ref. No.	Location
D900	E-10	D920	B-2
D901	E-10	D921	B-11
D903	E-10	D922	C-8
D904	F-10	D923	C-9
D905	F-10	D924	C-10
D910	C-5	D925	C-10
D911	C-6	D960	D-3
D912	C-7	D961	F-2
D913	C-7	D962	D-5
D914	C-2	D963	D-8
D915	C-3	D964	F-11
D916	C-4		
D917	C-4	IC900	E-6
D918	B-10		

5-6. SCHEMATIC DIAGRAM – CONTROL Board – • See page 20 for Waveform.

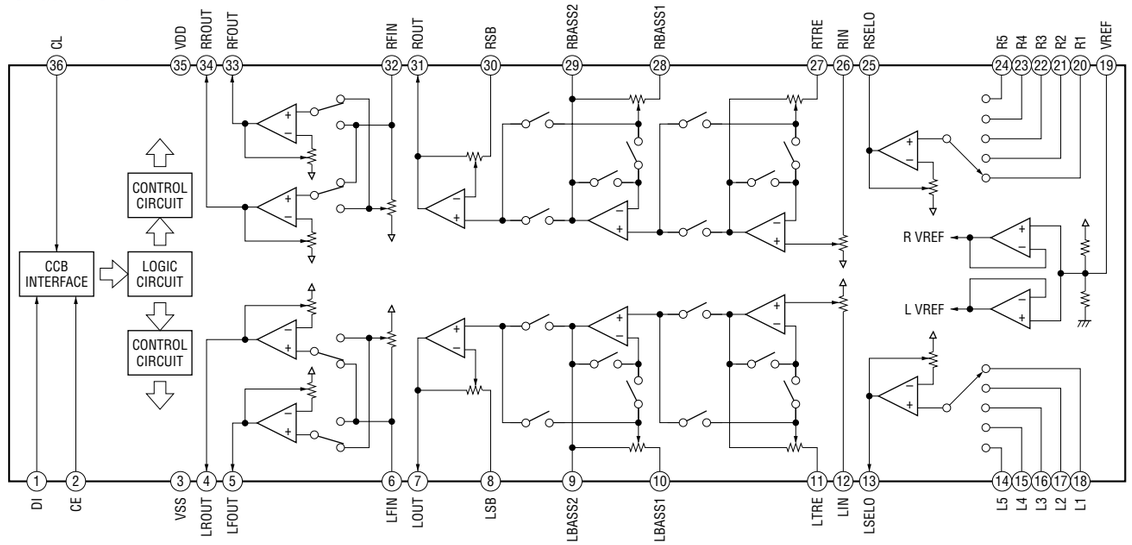


• **IC Block Diagrams**
– MAIN Board –

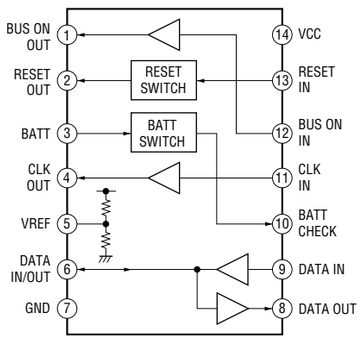
IC200 SAA6588T-118



IC400 LC75421M-TLM



IC800 MM1175XFF (XR-CA310 only)



5-7. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC1 MN101C49KTL (SYSTEM CONTROLLER)

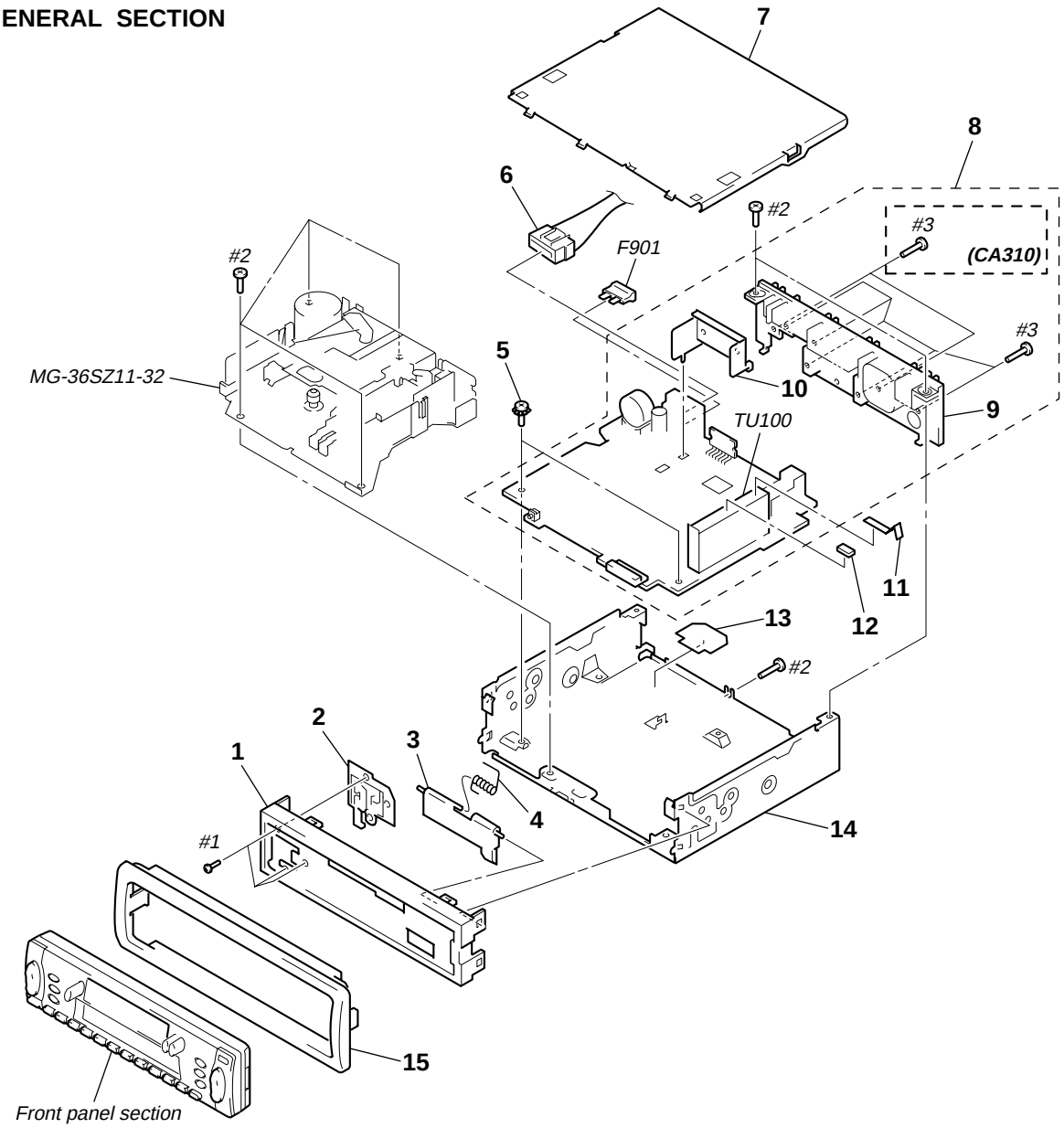
Pin No.	Pin Name	I/O	Description
1	VREF –	—	Reference voltage (0V) terminal (for A/D converter)
2	VSM	I	FM and AM signal meter voltage detection input from the FM/AM tuner unit (TU100) (A/D input)
3 to 6	NCI	I	Not used (fixed at “L”)
7	NOISE-DET	I	Noise level detection signal input at SEEK mode (A/D input)
8	MPTH	I	Multi-path detection signal input from the RDS decoder (IC200)
9	NCI	I	Not used (fixed at “L”)
10	VREF +	—	Reference voltage (+5V) terminal (for A/D converter)
11	VDD	—	Power supply terminal (+5V)
12	OSC2	O	Main system clock output terminal (18.432MHz)
13	OSC1	I	Main system clock input terminal (18.432MHz)
14	VSS	—	Ground terminal
15	XI	I	Sub system clock input terminal (32.768kHz)
16	XO	O	Sub system clock output terminal (32.768kHz)
17	MMOD	I	Setting terminal for the single chip mode “L”: single chip
18	LCD-SO (TX)	O	LCD serial data output to the liquid crystal display driver (IC900)
19	LCD-SI (RX)	I	LCD serial data input from the liquid crystal display driver (IC900)
20	LCD-CKO	O	LCD serial transfer clock signal output to the liquid crystal display driver (IC900)
21	TU-SDA	O	Serial data output to the FM/AM tuner unit (TU100)
22	TU-SI	I	Serial data input from the FM/AM tuner unit (TU100)
23	TU-SCL	O	Serial data transfer clock signal output to the FM/AM tuner unit (TU100)
24	$\overline{\text{LCD-RES}}$	O	LCD reset signal output to the liquid crystal display driver (IC900) “L”: reset
25	LCD-CE	O	Chip enable signal output to the liquid crystal display driver (IC900) “H” active
26	KEYACK	I	Key acknowledge signal detect input from the liquid crystal display driver (IC900)
27	DAVN-RDS	I	RDS data request signal input from the RDS decoder (IC200) “H” active
28	B/U-IN	I	Battery detect signal input from the SONY bus interface (IC800) and battery detect circuit “L” is input at low voltage IC800: Used for the XR-CA310 only
29	NCI	I	Not used (fixed at “L”)
30	RAM BU	I	Internal RAM reset detection signal input terminal Input terminal to check that RAM data are not destroyed due to low voltage This checking is made within 100 msec after reset “L”: RAM reset
31	TEST-IN	I	Setting terminal for the test mode “L”: test mode, Normally: fixed at “H”
32	NCI	I	Not used (fixed at “L”)
33	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC2) and reset switch (S1) “L”: reset “L” is input for several 100 msec after power on, then it changes to “H”
34	TU-ENABLE	O	Chip enable signal output to the FM/AM tuner unit (TU100) “H” active
35	BEEP	O	Beep sound drive signal output to the power amp (IC500)
36	POWER-ON	O	Main system power supply on/off control signal output terminal “H”: power on
37	ILL-IN	I	Not used (fixed at “H”)
38	$\overline{\text{ACC-IN}}$	I	Accessory detect signal input terminal “L”: accessory on
39	NCO	O	Not used (open)
40	TEL-MUTE	I	Telephone muting signal input terminal At input of “H”, the signal is attenuated by –20 dB Used for the XR-CA310 green illumination type only
41	NCI	I	Not used (fixed at “H”)
42	UNI-SO	O	Serial data output to the SONY bus interface (IC800) Used for the XR-CA310 only
43	UNI-SI	I	Serial data input from the SONY bus interface (IC800) Used for the XR-CA310 only

Pin No.	Pin Name	I/O	Description
44	UNI-CKO	O	Serial data transfer clock signal output to the SONY bus interface (IC800) Used for the XR-CA310 only
45	SDA	I/O	Two-way data bus with the RDS decoder (IC200)
46	NCO	O	Not used (open)
47	SCL	O	Bus clock signal output to the RDS decoder (IC200)
48	VOL-SO	O	Serial data output to the electrical volume (IC400)
49	VOL-CE	O	Chip enable signal output to the electrical volume (IC400)
50	VOL-CKO	O	Serial data transfer clock signal output to the electrical volume (IC400)
51	AMP-ON	O	Standby on/off control signal output to the power amp (IC500) "L": standby mode, "H": amp on
52	$\overline{\text{AMP-MUTE}}$	O	Muting on/off control signal output to the power amp (IC500) "L": muting on
53	MUTE	O	Audio line muting on/off control signal output terminal "H": muting on
54	TU-MUTE	O	Muting on/off control signal output of the FM and AM tuner signal "H": muting on
55	PORT2 (ST)	I	FM stereo broadcasting detection signal input from the FM/AM tuner unit (TU100) "H": stereo display lighting
56	NCO	O	Not used (open)
57	LO/$\overline{\text{DX}}$	O	Local/DX control signal output to the FM/AM tuner unit (TU100) "L": DX
58	TU-ON	O	Tuner system power supply on/off control signal output terminal "H": tuner power on
59	FM-ON	O	FM system power supply on/off control signal output terminal "L": AM power on, "H": FM power on Not used (open)
60	AM-ON	O	AM system power supply on/off control signal output terminal "L": FM power on, "H": AM power on Not used (open)
61 to 68	NCO	O	Not used (open)
69	NOISE-ON	O	Discharge control signal output for the noise detection circuit "H": discharge
70 to 82	NCO	O	Not used (open)
83	ILL-COLOR	I	Illumination color select input terminal "L": amber illumination "H": green illumination
84	DEST-SEL0	I	Destination setting terminal (fixed at "H")
85	DEST-SEL1	I	Destination setting terminal (fixed at "L")
86	DEST-SEL2	I	Destination setting terminal (fixed at "H")
87, 88	NCO	O	Not used (open)
89	$\overline{\text{NOSE-SW}}$	I	Front panel block remove/attach detection signal input terminal "L": front panel is attached
90	$\overline{\text{FLASH-W}}$	I	Internal flash memory data write mode detection signal input terminal "L": data write mode, Normally: fixed at "H"
91	NCO	O	Not used (open)
92	ILL-ON	O	Power on/off control signal output of the illumination LED and LCD back light (PL901, 902) "H": power on
93	BUS-ON	O	Bus on/off control signal output to the SONY bus interface (IC800) "L": bus on Used for the XR-CA310 only
94	$\overline{\text{SYS-RST}}$	O	Reset signal output to the SONY bus interface (IC800) "L": reset Used for the XR-CA310 only
95	DAVSS	—	Ground terminal (for D/A converter)
96	TAPE-ON	O	Capstan/reel motor (M901) drive signal output terminal "H": motor on
97	N/$\overline{\text{R}}$	I	Tape direction switch (S903) input terminal "L": reverse direction "H": forward direction
98	$\overline{\text{FF/REW}}$	I	FF/REW detection switch (S902) input terminal "L": FF/REW mode
99	$\overline{\text{TAPE-IN}}$	I	Tape in detection switch (S903) input terminal "L": tape in
100	DAVDD	—	Power supply terminal (+5V) (for D/A converter)

SECTION 6
EXPLODED VIEWS

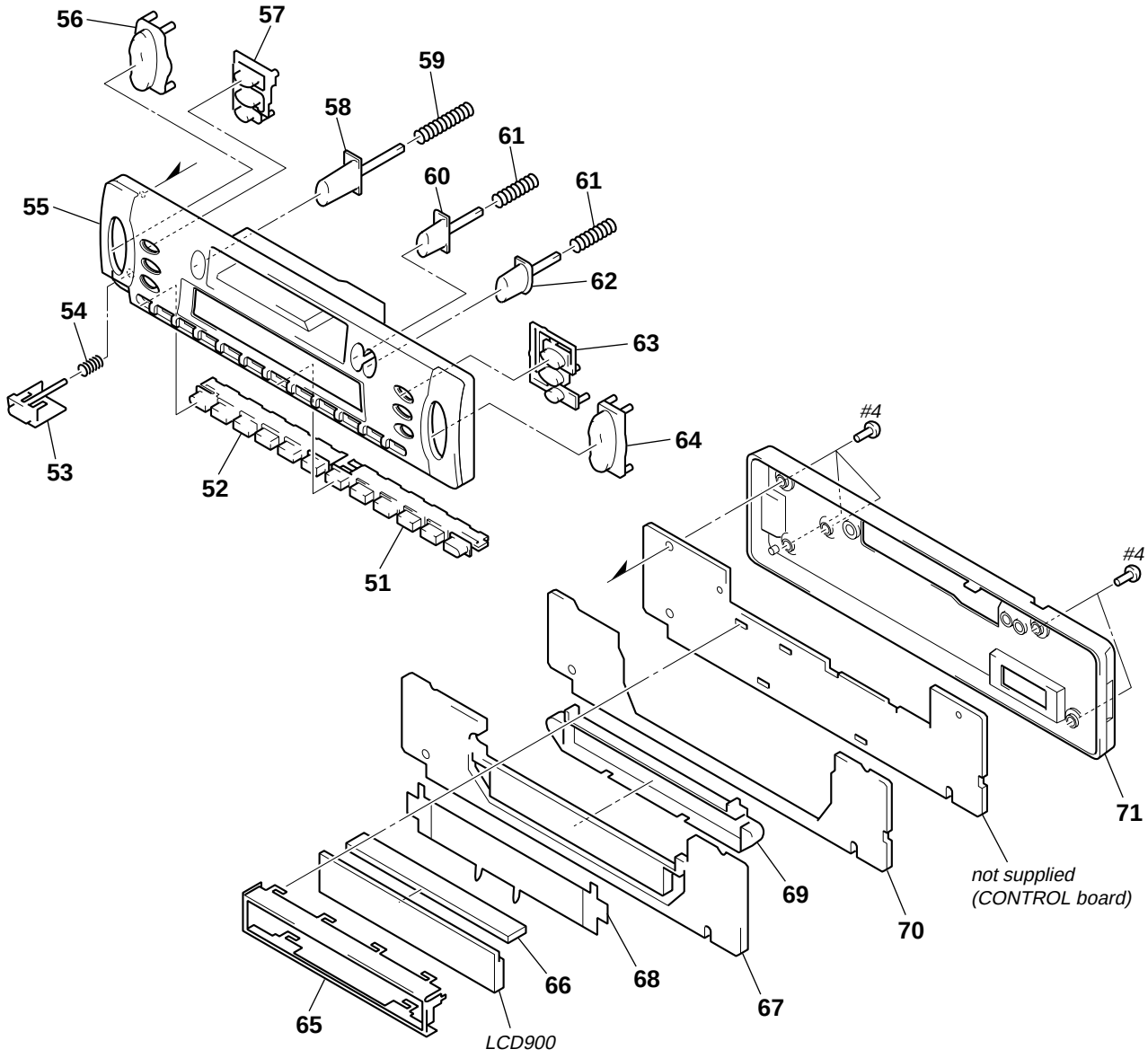
NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and Accessories and packing materials are given in the last of the electrical parts list.
- Abbreviation
  AMBER : Amber illumination type
  GREEN : Green illumination type

6-1. GENERAL SECTION



Ref. No.	Part No.	Description	Remark
1	3-224-905-01	PANEL, SUB	
2	X-3370-437-1	LOCK ASSY	
3	3-041-581-01	DOOR, CASSETTE (L210)	
3	3-041-581-11	DOOR, CASSETTE (CA310)	
4	3-044-125-01	SPRING, TORSION	
5	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
6	1-757-662-11	CORD (WITH CONNECTOR) (ISO) (POWER) (CA310: AMBER/L210)	
6	1-757-662-21	CORD (WITH CONNECTOR) (ISO) (POWER) (CA310: GREEN)	
* 7	X-3378-167-1	COVER ASSY, TOP	
* 8	A-3274-179-A	MAIN BOARD, COMPLETE (L210: AMBER)	
* 8	A-3326-857-A	MAIN BOARD, COMPLETE (CA310: AMBER)	
* 8	A-3326-990-A	MAIN BOARD, COMPLETE (CA310: GREEN)	
* 8	A-3340-001-A	MAIN BOARD, COMPLETE (L210: GREEN)	
9	3-224-921-11	HEAT SINK (CA310)	
9	3-224-921-21	HEAT SINK (L210)	
* 10	3-041-578-01	BRACKET (IC)	
11	3-937-650-01	PLATE (C), GROUND	
12	3-046-339-01	CUSHION (U)	
* 13	3-232-738-01	SHEET, INSULATING	
* 14	3-047-715-01	CHASSIS	
15	3-041-599-01	COLLAR	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)	
TU100	1-693-523-11	FM/AM TUNER UNIT (FAE370-E01)	

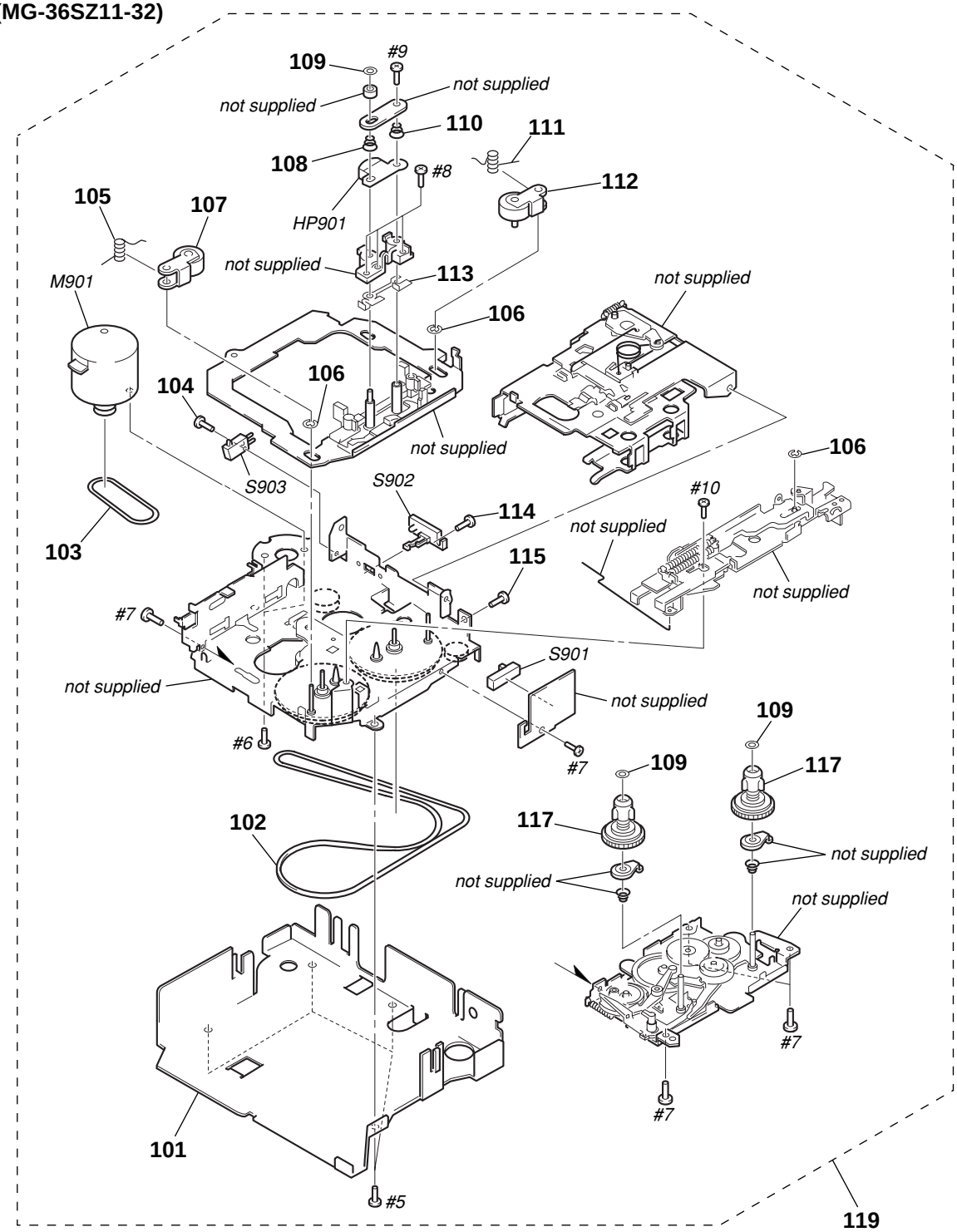
6-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-224-914-01	BUTTON (4-6) (4. 5. 6. TA. PTY. DSPL)	
52	3-224-906-01	BUTTON (1-3) (ATT. SENS. AF. 1. 2. 3)	
53	3-224-910-01	BUTTON (RELEASE)	
54	3-220-522-01	SPRING (RELEASE)	
55	X-3380-350-1	PANEL ASSY (FRONT) (CA310)	
55	X-3380-351-1	PANEL ASSY (FRONT) (L210)	
56	3-224-919-11	BUTTON (+/-)	
57	3-224-908-01	BUTTON (SRC. MODE. SEL) (CA310)	
57	3-227-908-11	BUTTON (T. MODE. SEL) (L210)	
58	3-224-917-01	BUTTON (EJECT) (⏏)	
59	3-029-327-01	SPRING (EJECT)	
60	3-224-916-01	BUTTON (REW) (◀◀)	
61	3-375-372-01	SPRING (F/R)	

Ref. No.	Part No.	Description	Remark
62	3-224-915-01	BUTTON (FF) (▶▶)	
63	3-224-907-01	BUTTON (D-BASS) (MBP. D. OFF)	
64	3-224-909-11	BUTTON (SEEK) (+ ▶▶I ▶▶ SEEK AMS ◀◀ I◀◀ -) (CA310)	
64	3-224-909-31	BUTTON (SEEK) (+ SEEK MANU -) (L210)	
* 65	3-224-927-01	PLATE (LCD), GROUND	
66	1-694-696-31	CONDUCTIVE BOARD, CONNECTION	
* 67	3-224-926-01	ILLUMINATOR	
* 68	3-224-925-01	PLATE, LIGHT GUIDE	
* 69	3-224-924-01	HOLDER (LCD)	
70	1-786-098-11	SWITCH, SHEET	
71	3-224-904-01	PANEL, FRONT BACK	
LCD900	1-804-512-11	DISPLAY PANEL, LIQUID CRYSTAL	

6-3. MECHANISM DECK SECTION (MG-36SZ11-32)



Ref. No.	Part No.	Description	Remark
* 101	3-224-920-01	BRACKET (MD)	
102	3-045-943-01	MAIN BELT	
103	3-045-945-01	SUB BELT (C)	
104	3-045-953-01	+MACHINE SCREW M1.7X6	
105	3-045-940-01	PINCH ARM SPG (R)	
106	3-045-950-01	E-RING (DIA. 2)	
107	3-045-890-01	PINCH ARM (R)	
108	3-045-933-01	ADJUSTER ARM SPG (B)	
109	3-045-949-01	PSW (REEL) B	
110	3-045-932-01	ADJUSTER ARM SPG (A)	
111	3-045-939-01	PINCH ARM SPG (F)	
112	3-045-891-01	PINCH ARM (F)	
113	3-045-906-01	ADJUSTER SHIM (X)	
114	3-045-952-01	+MACHINE SCREW M1.7X4	
115	3-713-786-51	SCREW +P 2X3	
117	3-045-893-01	REEL SPINDLE	
119	A-3220-826-A	MECHANISM DECK ASSY (MG-36SZ11-32)	
HP901	1-500-661-11	HEAD (PLAYBACK)	
M901	1-763-507-11	MOTOR (CAPSTAN/REEL)	
S901	1-771-928-11	SWITCH (SLIDE) (DIRECTION)	
S902	1-771-926-11	SWITCH (LEAF) (FF/REW)	
S903	1-771-927-11	SWITCH (LEAF) (TAPE DETECT)	

SECTION 7
ELECTRICAL PARTS LIST

CONTROL

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  AMBER : Amber illumination type
  GREEN : Green illumination type
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
		CONTROL BOARD	
		**********	
	1-694-696-31	CONDUCTIVE BOARD, CONNECTION	
	1-786-098-11	SWITCH, SHEET	
*	3-224-924-01	HOLDER (LCD)	
*	3-224-925-01	PLATE, LIGHT GUIDE	
*	3-224-926-01	ILLUMINATOR	
*	3-224-927-01	PLATE (LCD), GROUND	
		< CAPACITOR >	
C952	1-115-412-11	CERAMIC CHIP 680PF 5%	25V
C953	1-125-891-11	CERAMIC CHIP 0.47uF 10%	10V
C954	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C955	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
		< CONNECTOR >	
CN900	1-794-312-11	PIN, CONNECTOR 12P	
		< DIODE >	
D900	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D901	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D903	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D904	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D905	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D910	8-719-033-13	LED CL-170Y-CD-T (CA310: 2, DISC +/L210: 2)	(AMBER)
D910	8-719-082-98	LED CL-170FG-CD-T (CA310: 2, DISC +/L210: 2)	(GREEN)
D911	8-719-033-13	LED CL-170Y-CD-T (CA310: 3, REP/L210: 3)	(AMBER)
D911	8-719-082-98	LED CL-170FG-CD-T (CA310: 3, REP/L210: 3)	(GREEN)
D912	8-719-033-13	LED CL-170Y-CD-T (CA310: 4, SHUF/L210: 4)	(AMBER)
D912	8-719-082-98	LED CL-170FG-CD-T (CA310: 4, SHUF/L210: 4)	(GREEN)
D913	8-719-033-13	LED CL-170Y-CD-T (5)	(AMBER)
D913	8-719-082-98	LED CL-170FG-CD-T (5)	(GREEN)
D914	8-719-033-13	LED CL-170Y-CD-T (ATT)	(AMBER)
D914	8-719-082-98	LED CL-170FG-CD-T (ATT)	(GREEN)
D915	8-719-033-13	LED CL-170Y-CD-T (SENS, BTM)	(AMBER)
D915	8-719-082-98	LED CL-170FG-CD-T (SENS, BTM)	(GREEN)
D916	8-719-033-13	LED CL-170Y-CD-T (AF)	(AMBER)
D916	8-719-082-98	LED CL-170FG-CD-T (AF)	(GREEN)
D917	8-719-033-13	LED CL-170Y-CD-T (CA310: 1, DISC -/L210: 1)	(AMBER)
D917	8-719-082-98	LED CL-170FG-CD-T (CA310: 1, DISC -/L210: 1)	(GREEN)
D918	8-719-033-86	LED CL-170D-CD-T (ILLUMINATION)	(GREEN)
D918	8-719-082-98	LED CL-170FG-CD-T (ILLUMINATION)	(AMBER)
D920	8-719-082-71	LED LOT676-RS (ILLUMINATION)	(AMBER)
D920	8-719-084-33	LED LTT673-Q2R1R2 (ILLUMINATION)	(GREEN)
D921	8-719-082-71	LED LOT676-RS (ILLUMINATION)	(AMBER)
D921	8-719-084-33	LED LTT673-Q2R1R2 (ILLUMINATION)	(GREEN)
D922	8-719-033-13	LED CL-170Y-CD-T (6, ATA)	(AMBER)
D922	8-719-082-98	LED CL-170FG-CD-T (6, ATA)	(GREEN)
D923	8-719-033-13	LED CL-170Y-CD-T (TA)	(AMBER)
D923	8-719-082-98	LED CL-170FG-CD-T (TA)	(GREEN)
D924	8-719-033-13	LED CL-170Y-CD-T (PTY)	(AMBER)
D924	8-719-082-98	LED CL-170FG-CD-T (PTY)	(GREEN)
D925	8-719-033-13	LED CL-170Y-CD-T (DSPL)	(AMBER)
D925	8-719-082-98	LED CL-170FG-CD-T (DSPL)	(GREEN)
D960	8-719-988-61	DIODE 1SS355TE-17	
D961	8-719-988-61	DIODE 1SS355TE-17	
D962	8-719-988-61	DIODE 1SS355TE-17	
D963	8-719-988-61	DIODE 1SS355TE-17	
D964	8-719-988-61	DIODE 1SS355TE-17	
		< IC >	
IC900	8-759-657-06	IC LC75884W	
		< LIQUID CRYSTAL DISPLAY >	
LCD900	1-804-512-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< PILOT LAMP >	
PL901	1-518-743-21	LAMP, PILOT (LCD BACK LIGHT)	(AMBER)
PL901	1-518-743-31	LAMP, PILOT (LCD BACK LIGHT)	(GREEN)
PL902	1-518-743-21	LAMP, PILOT (LCD BACK LIGHT)	(AMBER)
PL902	1-518-743-31	LAMP, PILOT (LCD BACK LIGHT)	(GREEN)
		< RESISTOR >	
R900	1-216-295-11	SHORT 0	
R901	1-216-049-11	RES-CHIP 1K 5%	1/10W
R902	1-216-049-11	RES-CHIP 1K 5%	1/10W

CONTROL MAIN

Ref. No.	Part No.	Description			Remark
R903	1-216-049-11	RES-CHIP	1K	5%	1/10W
R904	1-216-049-11	RES-CHIP	1K	5%	1/10W
R905	1-216-049-11	RES-CHIP	1K	5%	1/10W
R910	1-216-025-11	RES-CHIP	100	5%	1/10W (GREEN)
R910	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R911	1-216-023-00	METAL CHIP	82	5%	1/10W (GREEN)
R911	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R912	1-216-025-11	RES-CHIP	100	5%	1/10W (GREEN)
R912	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R913	1-216-023-00	METAL CHIP	82	5%	1/10W (GREEN)
R913	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R914	1-216-029-00	METAL CHIP	150	5%	1/10W
R915	1-216-029-00	METAL CHIP	150	5%	1/10W
R916	1-216-029-00	METAL CHIP	150	5%	1/10W
R917	1-216-025-11	RES-CHIP	100	5%	1/10W (GREEN)
R917	1-216-029-00	METAL CHIP	150	5%	1/10W (AMBER)
R918	1-216-025-11	RES-CHIP	100	5%	1/10W (GREEN)
R918	1-216-029-00	METAL CHIP	150	5%	1/10W (AMBER)
R919	1-216-027-00	METAL CHIP	120	5%	1/10W
R920	1-216-025-11	RES-CHIP	100	5%	1/10W (GREEN)
R920	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R921	1-216-023-00	METAL CHIP	82	5%	1/10W (GREEN)
R921	1-216-027-00	METAL CHIP	120	5%	1/10W (AMBER)
R922	1-216-045-00	METAL CHIP	680	5%	1/10W (GREEN)
R922	1-216-047-00	RES-CHIP	820	5%	1/10W (AMBER)
R954	1-216-088-00	METAL CHIP	43K	5%	1/10W
R955	1-216-295-11	SHORT	0		

****

*	A-3274-179-A	MAIN BOARD, COMPLETE (L210: AMBER)
*	A-3326-857-A	MAIN BOARD, COMPLETE (CA310: AMBER)
*	A-3326-990-A	MAIN BOARD, COMPLETE (CA310: GREEN)
*	A-3340-001-A	MAIN BOARD, COMPLETE (L210: GREEN)
		**********
*	3-041-578-01	BRACKET (IC)
*	3-224-921-01	HEAT SINK
	7-685-794-09	SCREW +PTT 2.6X10 (S)
		< JACK >
ANT100	1-815-185-11	JACK (ANT) (FM/AM ANTENNA)
		< CAPACITOR/SHORT >

Ref. No.	Part No.	Description			Remark
C1	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C2	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C3	1-164-160-11	CERAMIC CHIP	20PF	5%	50V
C4	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C5	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7	1-124-234-00	ELECT	22uF	20%	16V
C8	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C21	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C22	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C81	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C82	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C102	1-124-584-00	ELECT	100uF	20%	10V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C109	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C124	1-124-257-00	ELECT	2.2uF	20%	50V
C125	1-124-257-00	ELECT	2.2uF	20%	50V
C130	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C131	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C150	1-124-257-00	ELECT	2.2uF	20%	50V
C160	1-124-257-00	ELECT	2.2uF	20%	50V
C161	1-124-257-00	ELECT	2.2uF	20%	50V
C162	1-104-942-11	ELECT	1uF	20%	50V (CA310)
C163	1-104-942-11	ELECT	1uF	20%	50V (CA310)
C164	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C165	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C200	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C201	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C202	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C203	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C204	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C205	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C208	1-124-589-11	ELECT	47uF	20%	16V
C209	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C211	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C212	1-125-889-11	CERAMIC CHIP	2.2uF	10%	10V
C213	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C214	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C250	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C251	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C252	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C253	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C254	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C255	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C256	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C257	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C258	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C290	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C291	1-124-234-00	ELECT	22uF	20%	16V
C350	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C351	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C352	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C353	1-124-234-00	ELECT	22uF	20%	16V
C354	1-124-584-00	ELECT	100uF	20%	10V
C355	1-124-584-00	ELECT	100uF	20%	10V
C356	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

MAIN

Ref. No.	Part No.	Description			Remark
C357	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C358	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C359	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C360	1-124-584-00	ELECT	100uF	20%	10V
C361	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C362	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C363	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C400	1-124-234-00	ELECT	22uF	20%	16V
C401	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C402	1-124-589-11	ELECT	47uF	20%	16V
C403	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C410	1-104-942-11	ELECT	1uF	20%	50V
C411	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C412	1-124-257-00	ELECT	2.2uF	20%	50V
C413	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C414	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C415	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C416	1-104-942-11	ELECT	1uF	20%	50V
C420	1-104-942-11	ELECT	1uF	20%	50V
C421	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C422	1-124-257-00	ELECT	2.2uF	20%	50V
C423	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C424	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C425	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C426	1-104-942-11	ELECT	1uF	20%	50V
C430	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (CA310)
C431	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (CA310)
C450	1-124-257-00	ELECT	2.2uF	20%	50V
C451	1-124-257-00	ELECT	2.2uF	20%	50V
C452	1-124-257-00	ELECT	2.2uF	20%	50V
C453	1-124-257-00	ELECT	2.2uF	20%	50V
C454	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C456	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C458	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C460	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C464	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C465	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C466	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C467	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C500	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C502	1-126-157-11	ELECT	10uF	20%	16V
C503	1-126-157-11	ELECT	10uF	20%	16V
C504	1-216-864-11	SHORT	0		
C506	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C507	1-126-157-11	ELECT	10uF	20%	16V
C620	1-124-589-11	ELECT	47uF	20%	16V
C621	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C622	1-124-257-00	ELECT	2.2uF	20%	50V
C640	1-104-942-11	ELECT	1uF	20%	50V
C700	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C702	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C710	1-126-936-11	ELECT	3300uF	20%	16V
C720	1-104-942-11	ELECT	1uF	20%	50V
C721	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C722	1-126-162-11	ELECT	3.3uF	20%	50V
C730	1-126-157-11	ELECT	10uF	20%	16V
C731	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C732	1-124-584-00	ELECT	100uF	20%	10V
C733	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C734	1-124-234-00	ELECT	22uF	20%	16V
C740	1-126-157-11	ELECT	10uF	20%	16V
C741	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C742	1-124-584-00	ELECT	100uF	20%	10V
C743	1-125-701-11	DOUBLE LAYER	0.047F		5.5V
C750	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C800	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (CA310)
C801	1-126-940-11	ELECT	330uF	20%	16V (CA310)
		< CONNECTOR >			
* CN300	1-564-705-11	PIN, CONNECTOR (PC BOARD) 3P			
* CN350	1-573-486-11	PIN, CONNECTOR (PC BOARD) 8P			
CN400	1-774-698-11	JACK, PIN 2P (BUS AUDIO IN) (CA310)			
CN600	1-794-311-21	PLUG, CONNECTOR 12P			
CN700	1-774-701-11	PIN, CONNECTOR 16P (POWER)			
CN800	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)			(CA310)
		< DISCHARGE GAP >			
CP100	1-519-504-11	GAP, DISCHARGE			
		< DIODE >			
D150	8-719-109-93	DIODE RD6.2ESB2			
D250	8-719-109-93	DIODE RD6.2ESB2			
D251	8-719-988-61	DIODE 1SS355TE-17			
D252	8-719-988-61	DIODE 1SS355TE-17			
D290	8-719-109-89	DIODE RD5.6ESB2			
D351	8-719-988-61	DIODE 1SS355TE-17			
D450	8-719-109-72	DIODE RD3.9ESB2			
D500	8-719-079-42	DIODE 1ZB22 (TPA3)			
D501	8-719-079-42	DIODE 1ZB22 (TPA3)			
D502	8-719-079-42	DIODE 1ZB22 (TPA3)			
D503	8-719-079-42	DIODE 1ZB22 (TPA3)			
D504	8-719-079-42	DIODE 1ZB22 (TPA3)			
D505	8-719-079-42	DIODE 1ZB22 (TPA3)			
D506	8-719-079-42	DIODE 1ZB22 (TPA3)			
D507	8-719-079-42	DIODE 1ZB22 (TPA3)			
D620	8-719-110-03	DIODE RD7.5ESB2			
D622	8-719-991-33	DIODE 1SS133T-77			
D630	8-719-110-49	DIODE RD18ESB2 (CA310: GREEN)			
D640	8-719-110-49	DIODE RD18ESB2			
D650	8-719-110-49	DIODE RD18ESB2			
D651	8-719-110-03	DIODE RD7.5ESB2 (L210)			
D700	8-719-200-82	DIODE 11ES2			
D710	8-719-049-38	DIODE 1N5404TU			
D720	8-719-988-61	DIODE 1SS355TE-17			
D721	8-719-200-82	DIODE 11ES2			
D722	8-719-200-82	DIODE 11ES2			
D731	8-719-110-14	DIODE RD9.1ESB3			
D740	8-719-200-82	DIODE 11ES2			
D741	8-719-935-40	DIODE HZS6B2LTD			
D750	8-719-988-61	DIODE 1SS355TE-17			

MAIN

Ref. No.	Part No.	Description	Remark
D800	8-719-109-93	DIODE RD6.2ESB2 (CA310)	
D801	8-719-110-49	DIODE RD18ESB2 (CA310)	
D802	8-719-110-49	DIODE RD18ESB2 (CA310)	
D805	8-719-109-97	DIODE RD6.8ESB2 (CA310)	
		< IC >	
IC1	8-759-982-77	IC MN101C49KTL	
IC2	8-759-682-69	IC XC61AN4302MR	
IC200	8-759-492-59	IC SAA6588T-118	
IC250	8-759-909-71	IC BA4558F	
IC350	8-759-924-46	IC BA4560F-T1	
IC400	8-759-827-11	IC LC75421M-TLM	
IC500	8-759-699-07	IC TA8263AH	
IC800	8-759-096-16	IC MM1175XFF (CA310)	
		< COIL/SHORT >	
L1	1-410-509-11	INDUCTOR 10uH	
L100	1-410-322-11	INDUCTOR 3.3uH	
L101	1-216-864-11	SHORT 0	
L710	1-419-476-11	CHOKE COIL 250uH	
		< TRANSISTOR >	
Q120	8-729-920-21	TRANSISTOR DTC314TKH04	
Q121	8-729-920-21	TRANSISTOR DTC314TKH04	
Q130	8-729-920-21	TRANSISTOR DTC314TKH04	
Q150	8-729-043-32	TRANSISTOR PDTA114EK-115	
Q151	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q250	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q290	8-729-205-96	TRANSISTOR 2SC3668-O	
Q291	8-729-043-32	TRANSISTOR PDTA114EK-115	
Q292	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q450	8-729-920-21	TRANSISTOR DTC314TKH04	
Q451	8-729-920-21	TRANSISTOR DTC314TKH04	
Q452	8-729-920-21	TRANSISTOR DTC314TKH04	
Q453	8-729-920-21	TRANSISTOR DTC314TKH04	
Q620	8-729-043-32	TRANSISTOR PDTA114EK-115	
Q621	8-729-043-29	TRANSISTOR PDTC144EK-115	
Q630	8-729-422-33	TRANSISTOR 2SD601A-Q-TX (CA310: GREEN)	
Q640	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q650	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q651	8-729-422-33	TRANSISTOR 2SD601A-Q-TX (L210)	
Q652	8-729-043-29	TRANSISTOR PDTC144EK-115 (L210)	
Q700	8-729-205-95	TRANSISTOR 2SA1428-Y	
Q702	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q703	8-729-205-95	TRANSISTOR 2SA1428-Y	
Q704	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q720	8-729-043-33	TRANSISTOR PDTA124EK-115	
Q721	8-729-216-22	TRANSISTOR 2SA1162-G	
Q722	8-729-205-95	TRANSISTOR 2SA1428-Y	
Q725	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q730	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q731	8-729-216-22	TRANSISTOR 2SA1162-G	
Q732	8-729-043-27	TRANSISTOR PDTC114EK-115	
Q733	8-729-904-60	TRANSISTOR DTB113ZK	
Q734	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q740	8-729-205-95	TRANSISTOR 2SA1428-Y	
Q741	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
Q750	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR/DIODE/CAPACITOR >	
R3	1-216-813-11	METAL CHIP 220 5% 1/16W	
R4	1-216-864-11	SHORT 0	
R7	1-216-809-11	METAL CHIP 100 5% 1/16W	
R8	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R9	1-216-065-00	RES-CHIP 4.7K 5% 1/10W	
R10	1-216-864-11	SHORT 0	
R11	1-216-809-11	METAL CHIP 100 5% 1/16W	
R12	1-216-809-11	METAL CHIP 100 5% 1/16W	
R21	1-247-807-31	CARBON 100 5% 1/4W	
R22	1-216-864-11	SHORT 0	
R26	1-249-441-11	CARBON 100K 5% 1/4W	
R27	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R28	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R29	1-216-809-11	METAL CHIP 100 5% 1/16W	
R30	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R31	1-216-809-11	METAL CHIP 100 5% 1/16W	
R32	1-247-807-31	CARBON 100 5% 1/4W	
R33	1-247-807-31	CARBON 100 5% 1/4W	
R34	1-247-807-31	CARBON 100 5% 1/4W	
R41	1-216-809-11	METAL CHIP 100 5% 1/16W	
R43	1-247-807-31	CARBON 100 5% 1/4W	
R61	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R62	1-216-864-11	SHORT 0	
R65	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R68	1-216-864-11	SHORT 0	
R69	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R70	1-216-864-11	SHORT 0	
R71	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R72	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R73	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R74	1-216-864-11	SHORT 0	
R75	1-216-864-11	SHORT 0 (GREEN)	
R76	1-216-845-11	METAL CHIP 100K 5% 1/16W (AMBER)	
R81	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R102	1-249-417-11	CARBON 1K 5% 1/4W	
R103	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R104	1-247-807-31	CARBON 100 5% 1/4W	
R105	1-247-807-31	CARBON 100 5% 1/4W	
R106	1-247-807-31	CARBON 100 5% 1/4W	
R107	1-247-807-31	CARBON 100 5% 1/4W	
R108	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-864-11	SHORT 0	
R118	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R120	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R121	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R122	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R123	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R130	1-216-065-00	RES-CHIP 4.7K 5% 1/10W	
R131	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R150	1-216-819-11	METAL CHIP 680 5% 1/16W	
R152	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R200	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R201	1-216-821-11	METAL CHIP 1K 5% 1/16W	

MAIN

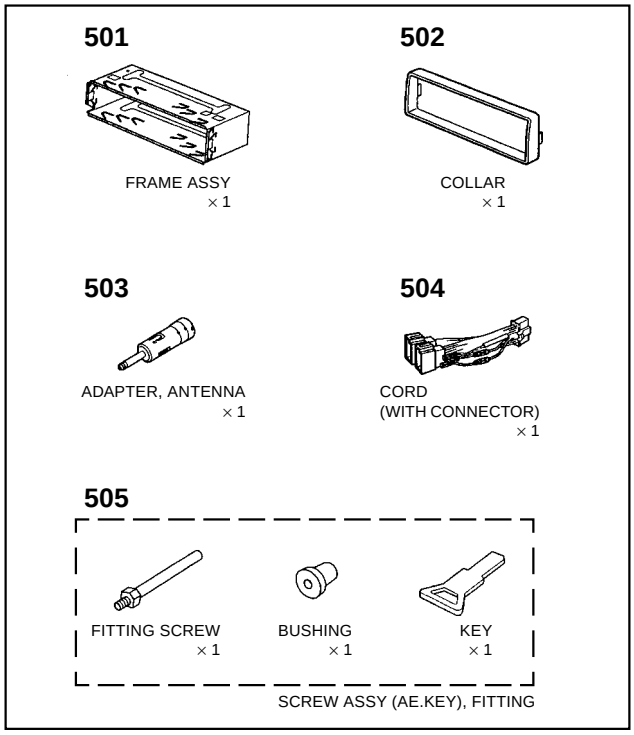
Ref. No.	Part No.	Description			Remark
R202	1-216-837-11	METAL CHIP	22K	5%	1/16W
R203	1-216-817-11	METAL CHIP	470	5%	1/16W
R206	1-249-393-11	CARBON	10	5%	1/4W
R207	1-249-393-11	CARBON	10	5%	1/4W
R209	1-216-864-11	SHORT	0		
R250	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R251	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R253	1-216-073-00	METAL CHIP	10K	5%	1/10W
R254	1-216-809-11	METAL CHIP	100	5%	1/16W
R255	1-216-857-11	METAL CHIP	1M	5%	1/16W
R256	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R257	1-216-845-11	METAL CHIP	100K	5%	1/16W
R258	1-216-864-11	SHORT	0		
R290	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R350	1-216-841-11	METAL CHIP	47K	5%	1/16W
R351	1-216-841-11	METAL CHIP	47K	5%	1/16W
R352	1-216-073-00	METAL CHIP	10K	5%	1/10W
R353	1-216-073-00	METAL CHIP	10K	5%	1/10W
R354	1-216-808-11	METAL CHIP	82	5%	1/16W
R355	1-216-808-11	METAL CHIP	82	5%	1/16W
R356	1-216-835-11	METAL CHIP	15K	5%	1/16W
R357	1-216-835-11	METAL CHIP	15K	5%	1/16W
R358	1-216-854-11	METAL CHIP	560K	5%	1/16W
R359	1-216-854-11	METAL CHIP	560K	5%	1/16W
R360	1-249-393-11	CARBON	10	5%	1/4W
R361	1-216-821-11	METAL CHIP	1K	5%	1/16W
R362	1-216-821-11	METAL CHIP	1K	5%	1/16W
R401	1-216-797-11	METAL CHIP	10	5%	1/16W
R410	1-216-834-11	METAL CHIP	12K	5%	1/16W
R411	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R420	1-216-834-11	METAL CHIP	12K	5%	1/16W
R421	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R430	1-216-073-00	METAL CHIP	10K	5%	1/10W (CA310)
R431	1-216-073-00	METAL CHIP	10K	5%	1/10W (CA310)
R432	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (CA310)
R433	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (CA310)
R450	1-216-813-11	METAL CHIP	220	5%	1/16W
R451	1-216-813-11	METAL CHIP	220	5%	1/16W
R452	1-216-813-11	METAL CHIP	220	5%	1/16W
R453	1-216-813-11	METAL CHIP	220	5%	1/16W
R454	1-216-073-00	METAL CHIP	10K	5%	1/10W
R455	1-216-073-00	METAL CHIP	10K	5%	1/10W
R456	1-216-073-00	METAL CHIP	10K	5%	1/10W
R457	1-216-073-00	METAL CHIP	10K	5%	1/10W
R458	1-216-841-11	METAL CHIP	47K	5%	1/16W
R459	1-216-841-11	METAL CHIP	47K	5%	1/16W
R460	1-216-841-11	METAL CHIP	47K	5%	1/16W
R461	1-216-841-11	METAL CHIP	47K	5%	1/16W
R500	1-216-821-11	METAL CHIP	1K	5%	1/16W
R501	1-249-429-11	CARBON	10K	5%	1/4W
R502	1-216-841-11	METAL CHIP	47K	5%	1/16W
R503	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R600	1-249-417-11	CARBON	1K	5%	1/4W
R601	1-249-417-11	CARBON	1K	5%	1/4W
R602	1-249-417-11	CARBON	1K	5%	1/4W
R603	1-249-417-11	CARBON	1K	5%	1/4W
R604	1-249-417-11	CARBON	1K	5%	1/4W
R605	1-249-417-11	CARBON	1K	5%	1/4W
R606	1-249-417-11	CARBON	1K	5%	1/4W
R607	1-249-417-11	CARBON	1K	5%	1/4W
R608	1-216-864-11	SHORT	0		
R620	1-216-805-11	METAL CHIP	47	5%	1/16W
R621	1-216-073-00	METAL CHIP	10K	5%	1/10W
R622	1-249-421-11	CARBON	2.2K	5%	1/4W
R630	1-249-417-11	CARBON	1K	5%	1/4W (CA310: GREEN)
R631	1-249-437-11	CARBON	47K	5%	1/4W (CA310: GREEN)
R632	1-216-833-11	METAL CHIP	10K	5%	1/16W (CA310: GREEN)
R633	1-216-833-11	METAL CHIP	10K	5%	1/16W (CA310: GREEN)
R634	1-216-845-11	METAL CHIP	100K	5%	1/16W (CA310: GREEN)
R635	1-216-845-11	METAL CHIP	100K	5%	1/16W (CA310: AMBER/L210)
R640	1-249-425-11	CARBON	4.7K	5%	1/4W
R641	1-216-841-11	METAL CHIP	47K	5%	1/16W
R642	1-216-841-11	METAL CHIP	47K	5%	1/16W
R643	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R644	1-216-845-11	METAL CHIP	100K	5%	1/16W
R650	1-249-417-11	CARBON	1K	5%	1/4W
R651	1-216-097-11	RES-CHIP	100K	5%	1/10W (L210)
R652	1-249-417-11	CARBON	1K	5%	1/4W (L210)
R700	1-216-073-00	METAL CHIP	10K	5%	1/10W
R701	1-249-421-11	CARBON	2.2K	5%	1/4W
R702	1-249-421-11	CARBON	2.2K	5%	1/4W
R703	8-719-200-82	DIODE 11ES2			
R704	1-249-482-11	CARBON	4.7	5%	1/2W
R705	1-216-073-00	METAL CHIP	10K	5%	1/10W
R706	1-249-421-11	CARBON	2.2K	5%	1/4W
R720	1-216-837-11	METAL CHIP	22K	5%	1/16W
R721	1-249-421-11	CARBON	2.2K	5%	1/4W
R722	1-249-421-11	CARBON	2.2K	5%	1/4W
R723	1-249-421-11	CARBON	2.2K	5%	1/4W
R724	1-249-421-11	CARBON	2.2K	5%	1/4W
R730	1-216-073-00	METAL CHIP	10K	5%	1/10W
R731	1-249-421-11	CARBON	2.2K	5%	1/4W
R732	1-216-817-11	METAL CHIP	470	5%	1/16W
R733	1-249-434-11	CARBON	27K	5%	1/4W
R740	1-216-837-11	METAL CHIP	22K	5%	1/16W
R751	1-216-841-11	METAL CHIP	47K	5%	1/16W
R752	1-216-838-11	METAL CHIP	27K	5%	1/16W
R753	1-216-809-11	METAL CHIP	100	5%	1/16W
R800	1-216-864-11	SHORT	0 (CA310)		
R801	1-216-073-00	METAL CHIP	10K	5%	1/10W (CA310)
R802	1-216-809-11	METAL CHIP	100	5%	1/16W (CA310)

MAIN

Ref. No.	Part No.	Description			Remark
R803	1-216-809-11	METAL CHIP	100	5%	1/16W (CA310)
R805	1-216-845-11	METAL CHIP	100K	5%	1/16W (L210)
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W (L210)
R807	1-216-845-11	METAL CHIP	100K	5%	1/16W (L210)
R808	1-216-845-11	METAL CHIP	100K	5%	1/16W (L210)
R809	1-216-845-11	METAL CHIP	100K	5%	1/16W (L210)
R810	1-216-845-11	METAL CHIP	100K	5%	1/16W
R811	1-216-864-11	SHORT	0		
R850	1-216-864-11	SHORT	0		
R851	1-216-864-11	SHORT	0		
R853	1-216-864-11	SHORT	0		
R855	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
		< VARIABLE RESISTOR >			
RV100	1-241-768-11	RES, ADJ, CARBON 220K			
		< SWITCH >			
S1	1-692-431-21	SWITCH, TACTILE (RESET)			
		< THERMISTOR >			
TH800	1-801-792-21	THERMISTOR, POSITIVE (CA310)			
		< TUNER >			
TU100	1-693-523-11	FM/AM TUNER UNIT (FAE370-E01)			
		< VIBRATOR >			
X1	1-795-134-11	VIBRATOR, CRYSTAL (18.432MHz)			
X4	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)			
X200	1-579-242-11	VIBRATOR, CRYSTAL (4.332MHz)			
**********					
		MISCELLANEOUS			
		**********			
6	1-757-662-11	CORD (WITH CONNECTOR) (ISO) (POWER) (CA310: AMBER/L210)			
6	1-757-662-21	CORD (WITH CONNECTOR) (ISO) (POWER) (CA310: GREEN)			
66	1-694-696-31	CONDUCTIVE BOARD, CONNECTION			
70	1-786-098-11	SWITCH, SHEET			
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)			
HP901	1-500-661-11	HEAD (PLAYBACK)			
LCD900	1-804-512-11	DISPLAY PANEL, LIQUID CRYSTAL			
M901	1-763-507-11	MOTOR (CAPSTAN/REEL)			
S901	1-771-928-11	SWITCH (SLIDE) (DIRECTION)			
S902	1-771-926-11	SWITCH (LEAF) (FF/REW)			
S903	1-771-927-11	SWITCH (LEAF) (TAPE DETECT)			
**********					

Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-782-09	SCREW +PTT 2X5 (S)	
#2	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-685-794-09	SCREW +PTT 2.6X10 (S)	
#4	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
#5	7-621-775-10	SCREW +B 2.6X4	
#6	7-627-553-27	PRECISION SCREW +P 2X2.5 TYPE3	
#7	7-685-101-11	SCREW +PTP 2X3 NON-SLIT	
#8	7-621-255-35	SCREW +P 2X5	
#9	7-621-255-25	SCREW +P 2X4	
#10	7-685-781-09	SCREW +PTT 2X4 (S)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-225-220-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, DUTCH, ITALIAN, GERMAN)	
	3-225-220-21	MANUAL, INSTRUCTION (ENGLISH, SPANISH, SWEDISH, PORTUGUESE, GREEK)	
	3-225-220-31	MANUAL, INSTRUCTION (ENGLISH, CZECH, POLISH, TURKISH, RUSSIAN) (L210)	
	3-225-221-11	MANUAL, INSRTUCTION, INSTALL (ENGLISH, FRENCH, DUTCH, ITALIAN, GERMAN)	
	3-225-221-21	MANUAL, INSRTUCTION, INSTALL (ENGLISH, SPANISH, SWEDISH, PORTUGUESE, GREEK)	
	3-225-221-31	MANUAL, INSRTUCTION, INSTALL (ENGLISH, CZECH, POLISH, TURKISH, RUSSIAN) (L210)	
	X-3378-490-1	CASE (PANEL) ASSY (for FRONT PANEL)	
**********			

Ref. No.	Part No.	Description	Remark
		PARTS FOR INSTALLATION AND CONNECTIONS	
		**********	
501	X-3376-298-1	FRAME ASSY, FITTING	
502	3-041-599-01	COLLAR	
503	1-465-459-21	ADAPTER, ANTENNA	
504	1-757-662-11	CORD (WITH CONNECTOR) (ISO) (POWER)	(CA310: AMBER/L210)
504	1-757-662-21	CORD (WITH CONNECTOR) (ISO) (POWER)	(CA310: GREEN)
505	X-3370-077-1	SCREW ASSY (AE. KEY), FITTING	



REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.2	2001.05	Correcting of printing errors of Part No. for CASSETTE DOOR, HEAT SINK, LIQUID CRYSTAL DISPLAY (ECN-CSA04596/CSA04631/CSA04854)
1.1	2001.04	Correction of printing errors of Part No. for BUTTON (+/–), BUTTON (SEEK) and BUTTON (SOURCE) (ECN-CSA04319/CSA04462/CSA04516)
1.0	2001.02	New